STRATEGY AND STRUCTURE IN OWNER-CONTROLLED AND MANAGEMENT-CONTROLLED FIRMS

By

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For Dr. Roy D. and Cathryn M. Harris

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Abstract of Dissertation Presented to the Graduate School
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STRATEGY AND STRUCTURE IN OWNER-CONTROLLED
AND MANAGEMENT-CONTROLLED FIRMS

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This dissertation examines the implications of the ownership structure for the relationship between organizational strategy and structure. The fundamental premise of this research is that as ownership is separated from control of the corporation, managers will become increasingly likely to deviate from operating the firm in the best interest of the owners of the firm. Firms in which an owner has acquired or retained a critical level of the firm's equity are defined as owner-controlled. Firms that do not have a dominant outside shareholder are defined as management-controlled.

This study demonstrates the effects of the separation of ownership and control for the relationship between strategy and organizational structure. Firms that are management-controlled should have strategies and organizational structures that are less efficient from an investor's standpoint, but that increase the probability of managerial

interests being served. Firms that are owner-controlled should have strategies and organizational structures that are more efficient and effective. Organizational structure in the research sample was measured according to the following classification scheme: U-Form, Intermediate U-Form, Intermediate M-Form, and M-Form.

Management-controlled firms were found to be larger and more likely to engage in unrelated diversification and tended to adopt M-Form organizational structures. Owner-controlled firms were found to be more likely to adopt U-Form organizational structures. No performance effects were found for ownership structure, strategy or organizational structure.

Implications for organizations, strategy/structure research, agency theory and managerial capitalism are discussed.

CHAPTER 1
INTRODUCTION

The central thesis of strategy/structure research is that organization structure follows strategy (Chandler, 1962, p.14). This idea was originally proposed by Chandler (1962) and further developed by Rumelt (1974). A fundamental premise that drives this research is that the alignment of organizational structures with their strategy leads to economic efficiency, and therefore profit maximization. Thus, the strategy/structure school, with its assumptions of firm profit maximization, has its roots in neoclassical economics (Varian, 1978).

There is an alternative perspective to the assumption of firm profit maximization. While the neoclassical assumption is that firms are run to maximize returns to the owners, an alternative explanation is that firms may instead maximize returns in the interests of its managers. This occurs when owners have become separated from effective control of the firm, and it is in the hands of the firm's managers. This is the perspective of managerial capitalism (Berle & Means, 1932).

Managerial capitalism argues that the rise of the modern corporation has led to a separation of ownership from control of the firm (Berle & Means, 1932). Shareholders of large, publicly held corporations have increasingly become separated from the ability to make meaningful decisions about how their investment is managed. Control of the

modern firm is in the hands of professional managers, who make critical decisions regarding the operation and strategic direction of the firm (Lewis & Sappington, 1989). Managers, like owners, are rational and tend to be self-interest maximizers. Managers may also possess more information than owners regarding the operations of the firm. This information asymmetry, and a divergence of interests between managers and the investor, creates a situation in which the managers of these public corporations, rather than making decisions in the best interest of the firm, tend to make decisions that are in their own best interest.

This dissertation examines the implications of agency theory and managerial capitalism for the strategy-structure relationship. The fundamental hypothesis of this research is that as ownership is separated from control of the corporation, managers will become increasingly likely to deviate from operating the firm in the best interest of its owners. Extensive research shows that this occurs through compensation strategy (Tosi & Gomez-Mejia, 1989), diversification strategy (Hill & Snell, 1989) and accounting methods (Hunt, 1986). This study assesses the effects of the separation of ownership and control for the relationship between strategy and organizational structure, a question that has not been studied. Thus, the separation of ownership from control (the ownership structure) of the corporation has implications for the strategy, organizational structure and performance of the firm.

The impact of owners gaining or retaining control of the firm should be to drive internal organizational strategy and structure toward profit maximization. Firms that retain some critical degree of ownership control should tend to have strategies and

structures that are more efficient from a firm performance point of view. Firms in which management has achieved or retained control should tend to have strategies and structures that are less efficient from an investor's standpoint, but maximize the size of the corporation (Baumol, 1959) and increase the probability of managerial interests being served (Marris, 1964).

Strategy/Structure Research Model

The theoretical model that governs this research links the ownership structure of the firm by equity holders or managers, strategy, structure and economic performance (see Figure One). The model shows three links to firm size: ownership structure, organizational structure and strategy. Size affects the ownership structure of the firm, with larger firms increasingly likely to be dispersed in their equity ownership. Larger firm size also affects the firm's strategy and organizational structure, with larger firms adopting different strategies and structures than smaller firms. Ownership structure then affects the diversification strategy and organizational structure of the firm, as well as organizational performance. Structure follows strategy (Chandler, 1962), and both strategy and structure also affect firm performance (Rumelt, 1974).

The ownership structure/strategy/organizational structure relationship is the heart of the model, and the central research agenda of the present study. Agency theory and managerial capitalism should provide new insights into the strategy/structure relationship, and suggests that the ownership structure will influence the firm's strategy and structure.

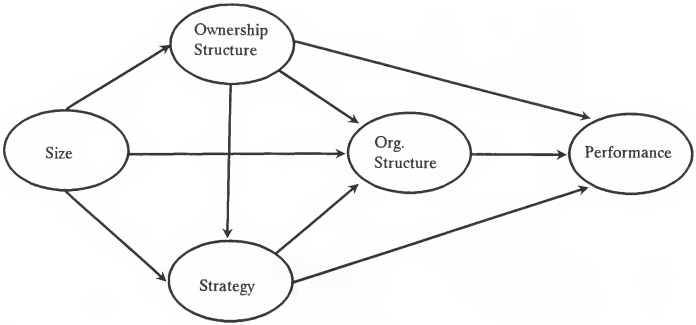

Figure One

Strategy/Organizational Structure Research Model

Theoretical Foundations

There are two theoretical sources on which this dissertation is based: one is the strategy/structure school (Chandler, 1962; Rumelt; 1974) and the second is agency theory (Fama, 1980) and managerial capitalism (Berle & Means, 1932).

The Strategy/Structure Relationship

A large body of research in the general area of strategic management has concerned itself with the linkages between the strategy and the structure of the firm (Chandler, 1962; Rumelt, 1974; Grinyer, Yasai-Ardekani & Al-Bazzaz, 1980; Grinyer & Yasai-Ardekani, 1981; Hill & Hoskisson, 1987). A fundamental proposition of this research is that organizational structure follows the strategy of the firm (Chandler, 1962). As firms become more strategically diversified, there is a need for more complex organizational systems in order to manage the increased diversity, leading to a multidivisional type of organization (Chandler, 1962). In turn, the multidivisional structure has served to institutionalize diversification (Rumelt, 1974, p.2). Williamson (1971, p.367) argues that the multidivisional form of organization (M-form) is more efficient from a profit-maximization point of view than other, simpler structures such as the functional or U-Form type of organization. This is due to increased efficiency regarding transactions costs (Williamson & Ouchi, 1981).

Theoretical position. Alfred Chandler (1962) provides an explanation for how the modern, "decentralized" organizational form came into being. The focus of his theory is in the area of industrial enterprises. An industrial enterprise is a firm " . . . involved in the handling of goods in some or all of the successive industrial process from the procurement of the raw material to the sale to the actual customer" (Chandler, 1962, p.8).

Chandler states two seminal definitions: (1) Strategy, which is defined as the planning and carrying out of growth, and (2) Structure, which is defined as the organization designed to administer these expanded activities and resources (Chandler, 1962, p.13). "Strategy can be defined as the determination of the basic long-term goals and objectives of an enterprise, and the adoption of courses of action and the allocation of resources necessary for carrying out these goals" (Chandler, 1962, p.13). These new courses of action will require an altered internal organization, and to meet these demands must adopt new structures. "Structure can be defined as the design of organization through which the enterprise is administered" (Chandler, 1962, p.14). Thus, strategy and structure are integral in achieving the overall objectives of the enterprise.

Accordingly, Chandler proposes that structure follows strategy and the most complex type of structure is the result of the concatenation of several basic strategies (Chandler, 1962, p.14). "The decision to expand into new types of functions called for the building of a central office and a multidepartmental structure, while the developing of new lines of products or continued on a national or international scale brought the formation of the multidivisional structure with a general office to administer the different

divisions" (Chandler, 1962, p.14). The administrative design of the organization then follows, according to Chandler, from the planning and implementation of organizational growth.

Strategy/Structure research. The most important empirical study of Chandler's (1962) theory was executed by Richard Rumelt (1974). He conducted a longitudinal study of the evolution of large-scale industrial enterprises in the United States for the period between 1949 and 1969. Built upon the work of Chandler (1962), the purpose of Rumelt's study was to document the link between the strategy and structure of the firm and determine their mutual impact on firm performance.

Rumelt (1974) classified a sample of Fortune 500 firms as having one of four main types of diversification strategy: (1) single business, (2) dominant business, (3) related business and (4) unrelated business. Firms classified as single business operated in only one business segment. Firms classified as dominant business operated heavily (better than 70 percent) in one business segment but had begun to diversify modestly into other lines of business. Firms in Rumelt's (1974) sample had two main diversification strategies, related and unrelated. Related business refers to firms which had diversified into businesses similar to the firm's core business. Unrelated business had firms diversifying into businesses different from the firm's core activities.

Firms classified as diversifying into related business had less than 70 percent of their activities centered on their core business but had accomplished this diversification by relating their new activities to their old activities (Rumelt, 1974, p.32). The unrelated business diversification category represented " . . . firms that had diversified chiefly

without regard to relationships between new business and current activities" (Rumelt, 1974, p.32).

Rumelt's taxonomy of organizational structure was built on two basic archetypes: functional and product-division. A functional structure is a firm organized according to basic functional activities: production, marketing, finance, and so forth (Chandler, 1962). This is also the U-Form of Williamson (1975). A product-division structure is organized along product lines, with each semi-autonomous division responsible for a separate line of products (Chandler, 1962). This is the M-Form of Williamson (1975). These categories of organizational structure can be thought of as the basic "pure" forms, with the others representing variations on this theme.

Rumelt identified five distinct types of organizational structure in his study: (1) functional, (2) functional with subsidiaries, (3) product division, (4) geographic division, and (5) holding company (Rumelt, 1974, p.38-39).

Rumelt's (1974) results largely confirm the work of Chandler (1962). In 1949, 70 percent of the Fortune 500 was either a single business or only slightly diversified. By 1969, more than 50 percent of the Fortune 500 had diversified, either through related or unrelated diversification (Rumelt, 1974, p.146). Simultaneously, (e.g., 1949 through 1969) firms moved rapidly from functional to product-division structures. In 1949, only 20 percent of the Fortune 500 was organized as a product-division firm. By 1969, this percentage had risen to 75 percent. These results empirically confirm Chandler's (1962) proposition; structure followed strategy in his study. By 1969, the product division form of organization had become a standard organizational practice.

Rumelt drew two important conclusions about the performance of these organizations. First, the best performers in Rumelt's sample were dominant and related diversifiers, that is, firms that had diversified closely to their core business. "Both strategies were based on the concept of controlled diversification" (Rumelt, 1974, p.150). These companies had diversified into areas that complemented or built upon an organizational strength or competence. "While such firms frequently develop new products and enter new businesses, they are loath to invest in areas that are unfamiliar to management" (Rumelt, 1974, p.151).

Second, growth in firms that had product-division structures was very high. "Firms with product-division structures had rates of growth that, on average, were significantly higher than those of firms with other types of organizational structures" (Rumelt, 1974, p.152). The rates of profitability for the product-division organizations were also at least as high as those of other firms as well.

Other researchers have also investigated the relationship between strategy and structure. Grinyer, et. al. (1980) report a strong and positive relationship between strategy and structure. Grinyer & Yasai-Ardekani (1981) test their earlier results (Grinyer, et. al., 1980) with a new sample, and again find a strong linkage between strategy and structure. However, the relationship they find between size and structure (and size and strategy) is larger. They suggest that the strategy/structure linkage may be via size (Grinyer & Yasai-Ardekani, 1981, p.471). There have also been results inconsistent with previous research. Keats & Hitt (1988) do not find that the linkage between strategy and structure is through size. They also find that strategy followed

structure in their study, rather than structure following strategy. This result is contrary to the theory of Chandler (1962).

The M-Form hypothesis. The theoretical explanation for the relative performance differences of various structural types of organizations is provided by Williamson (1971). Williamson (1971) argues for the superiority of the multidivisional (or M-Form) form of corporate organization relative to the functional (or U-Form) organization.

The U-Form type of organization has its principal operating units organized along functional lines - sales, finance, manufacturing, research and development, etc. The U-Form is equivalent to the centralized structure of Chandler (1962) and the functional structure of Rumelt (1974). "Specialization by function has been the traditional way of organizing multifunctional activities and, in an enterprise of only moderate size, is the prevailing basis today" (Williamson, 1971, p.344). For small firms, it is an ideal way to organize.

Williamson (1971) anticipates two negative effects of organization size for these U-form firms: First, the firm becomes increasingly susceptible to a cumulative loss of control, which adversely affects internal efficiency, and second, that the growth in size begins to change the character of the strategic decision-making process (Williamson, 1971, p.345). These difficulties, experienced in an U-Form organization as it continues to grow in size, are presumably the reason for the creation of the M-Form (or multidivisional) structure. While the U-Form is advantageous for the small to medium-sized firm, increased size eventually stifles the ability of the U-Form to adapt (Williamson, 1971):

> Functional organization nevertheless was and is the natural way to decompose simple tasks. Preserving the functional form as the firm is gradually expanded is also to be expected. Eventually, however, the U-Form structure defeats itself. This will obtain even if the U-Form enterprise undergoes a simple radial amplification in size without concurrent diversification. If accomplished through diversification, coordination within the functional firm can be expected to present even more severe problems (p.350).

The organizational response to these pressures is the M-Form firm. "The organizational innovation that was devised as a response to these conditions involved substituting quasi-autonomous operating divisions (organized mainly along product, brand, or geographic lines) for the functional divisions of the U-Form structure as the principal basis for achieving compartmentalization" (Williamson, 1971, p.350). Divisions are organized along product lines, with each division responsible for a clearly defined product or lines of products. The M-Form firm is analogous to the multidivisional firm of Chandler (1962) and Rumelt (1974).

There are several advantages to the M-Form type of organizational structure. First, the general office is released to pursue strategic decision making without being consumed by operating decisions for each of the operating divisions. This frees the general office to focus on resource allocation. Second, " . . . the separation of the general office from operations provides the general office executives with the psychological commitment to be concerned with the overall performance of the organization rather than become absorbed in the affairs of the functional parts (Williamson, 1971, p.354). Removed from day to day operations, top executives are then able to focus on resource allocation and the long-term direction of the firm.

The M-Form structure then displays rationality and synergy: the whole of the M-Form organization then becomes greater (e.g., more effective and more efficient) than its several constituent elements (Williamson, 1971, p.354). This leads Williamson (1971) to his central thesis: the M-Form Hypothesis.

> Expressed in conventional goal-pursuit and efficiency terms, the argument comes down to this: the organization and operation of the large enterprise along the lines of the M-Form favors goal-pursuit and least-cost behavior more nearly associated with the neoclassical profits-maximization hypothesis than does the U-Form organizational alternative (p.367).

Williamson (1971) argues the M-form firm is more likely to lead to greater profit maximization than the U-form type of organization. The U-Form firm favors goal-pursuit and cost behavior more nearly associated with the managerial discretion model posed by the managerial capitalists (Berle & Means, 1932) than the M-Form organization (Williamson, 1971, p.367).

With regard to organizational design, the move to the M-Form organizational structure had the effect of economizing on transactions costs. Top management, removed from the burden of daily operating decisions, was now free to review the operations of each division and allocate resources on the basis of efficiency. These internal transactions replaced the ordinary functioning and discipline of external capital markets. As a result, "...the economies driving the change and the economies that were realized were of a transaction cost ...kind." (Williamson & Ouchi, 1981).

Later, Williamson (1975) develops a structural classification scheme with which to empirically test the M-Form hypothesis. The classification scheme has six

organizational classifications: (1) Unitary (U-Form), (2) Holding Company (H-Form), (3) Multidivisional (M-Form), (4) Transitional Multidivisional (M'-form), (5) Corrupted Multidivisional, and (6) Mixed (X-Form). The Williamson typology is very similar to that of Rumelt (1974).

The M-Form hypothesis argues the M-Form organization is inherently superior to the U-Form firm. Steer & Cable (1978) substantiate that hypothesis. "Our results indicate that the internal organization structure of the firms in our sample exerted a statistically significant and large influence on their profitability. Evidently, organizational form matters . . . " (Steer & Cable, 1978, p.28). Essentially these same results are also obtained by Armour & Teece (1978), Teece (1981) and Thompson (1981), though with a few important differences. Armour & Teece (1978) find a positive relationship between structure and profitability, but only during the time in which the organizational form was being introduced into the industry under observation. Their results suggest that, once diffused and accepted by an industry, superior returns are no longer found for the M-Form firm (Armour & Teece, 1978).

Another point is raised by Thompson (1981), who takes issue with the results of Steer & Cable (1978), arguing that their results are the results of a specific industry factor.

> The results . . . substantiate the Steer-Cable findings of a large performance differential in favor of the optimally organized (essentially M-Form) firms. However, evaluating against industry and market factors suggests that much of this difference was attributable to an abnormally short-term decline in the performance of the H-Form firms. In particular, it appears that a substantial proportion of holding companies experienced a very sharp fall in

> profitability and share price - an event which was frequently a precursor of structural change to the M-Form (p.202).

Thompson (1981) argues this result is consistent with Williamson's (1975) arguments surrounding the H-Form firm, in that they lack certain controls and planning mechanisms necessary for superior financial performance (Thompson, 1981, p.202).

Hill (1985), in a critical review of Williamson (1975) and the research previously discussed, proposes that Williamson's arguments are essentially flawed (Hill, 1985, p.731). In particular, he argues Williamson's work is not generalizable. "Williamson presents his theory as a general one applicable to most large firms. In reality considerable deviations from the pure M-Form structure exist among multidivisionals. . . . All of this suggests that Williamson's theory is not a general theory at all, but a specific theory applicable at best to only a fraction of the population of large enterprises" (Hill, 1985, p.749). Hill (1985) argues the economic benefits accruing to the M-Form may never appear, especially if top management pursues short-term profitability at the expense of the long-term.

Additionally, Hill & Pickering (1986) suggest the M-Form hypothesis is not valid. Their results suggest there is no relationship between the M-Form structure and superior financial performance. They argue there are important differences between companies with similar organizational structures (Hill & Pickering, 1986, p.28). Thus, current research on structure may not capture important organizational differences.

Theories of Managerial Control

There are two results from the growth of the corporation, decentralization (Child, 1973) and a separation of ownership and control (Berle & Means, 1932, p. 69). As the size of the organization increases, the organizational structure decentralizes, moving toward a multidivisional (M-Form) structure. The increased span of control that increased size brings forces this adjustment. Growth without structural adjustment can lead only to economic inefficiency (Chandler, 1962, p.16). Correspondingly, as the organization increases in size there is a separation of control from the ownership of the firm. In the largest of corporations ownership is so dispersed that management exercises virtually complete control of the corporation.

The main question, then, is how has the separation of ownership from control affected the internal strategy and structure of the firm? Agency theory and managerial capitalism provide a theoretical foundation for the exploration of these questions.

Agency theory. Agency theory regards the firm as a nexus of contracts (Jensen & Meckling, 1976, p.310). The agency relationship is generally defined as "a contract under which one or more persons (the principal(s)) engage another person (the agent) to perform some service on their behalf which involves delegating some decision making authority" (Jensen & Meckling, 1976, p.308). The heart of the agency conflict derives from the manager's (agent's) tendency to appropriate perquisites from the firm for personal consumption (Jensen & Meckling, 1976, p.313). Solving the agency conflict involves either bonding the agent (along with its resulting costs) (Jensen & Meckling,

1976), some type of monitoring (Holmstrom, 1979; Shavell, 1979), or incentive alignment between principal and agent (Fama, 1980).

There are two basic types of principal-agent problems: hidden action (moral hazard) and hidden information (adverse selection) (Arrow, 1985). The most common type of hidden action is the effort of the agent. Principals, seeking to maximize returns on their capital, contract with agents to manage their affairs. Effort in these types of models has disutility for the agent: the agent prefers less effort, but effort has a positive value to the principal. The agent's incentive to shirk in this situation is known as moral hazard. The other principal-agent problem, hidden information, involves principals unable to perfectly observe the actions of the agent. Because the agent's actions are not completely observable, and because agents have an incentive to shirk, they may select actions that are suboptimal for the firm. This is the problem of adverse selection.

The implications of moral hazard and adverse selection for the strategy and structure of the firm are negative. Moral hazard may mean that firms in which managers are not held accountable to owners fail to take the actions necessary to ensure profit maximization. Adverse selection is even more serious. Actions taken by management may include selecting strategies and organizational structures that are suboptimal with regard to firm performance, but reflect management's aversion to taking actions that are costly to themselves.

Principals in the principal-agent relationship are therefore likely to engage in activities to ensure agents take actions and make decisions in the best interest of the principal. The principal may engage in some form of observation of the agent or contract

with the agent to reduce this interest divergence, the costs of which accrue to the principal. It is unlikely these activities will perfectly align the interests of principals and agents, and therefore a residual loss due to this divergence from purely profit-maximizing activity is likely. Jensen & Meckling (1976, p.308) define agency costs as the sum of (1) the monitoring expenditures by the principal, (2) the bonding expenditures by the agent and (3) the residual loss.

Agency costs from an organizational perspective could include (1) the cost to owners of monitoring the actions taken by top management, through either direct observation or means of another agent, (2) the cost incurred of contracting with top management regarding the terms and conditions of employment, and (3) the loss that would accrue due to the imperfect "fix" of these solutions.

There has been a great deal of research regarding the optimal structuring of incentives in a principal-agent relationship (Mirrlees, 1976; Shavell, 1979; Harris & Raviv, 1979; Holstrom, 1979; Grossman & Hart, 1983; Sappington, 1983; Lewis & Sappington, 1989). There are three general conclusions to be drawn from this literature. First, in a principal-agent relationship where both parties are risk-neutral (e.g., neither risk-averse of risk-seeking), there are no gains to be derived from monitoring an agent's activities. This result also holds when there is no ex post uncertainty about the relationship between the agent's action and the payoff (e.g., outcomes are perfectly observable and directly tied to agent action) (Harris & Raviv, 1979; Tirole, 1988).

Second, there are potential gains to monitoring in all cases except where the agent is risk-neutral (Harris & Raviv, 1979, p.233). Shavell (1979) and Holmstrom (1979)

both conclude whenever there are potential gains to monitoring in a principal-agent relationship, these gains can be realized by use of a contract that incorporates imperfect monitoring. Monitoring the agent's actions almost always realizes a gain to the principal, even if the information is imperfect (Harris & Raviv, 1979).

Last, optimal contracting between principal and agent is tied to outcomes. Since there is likely to be an asymmetry of information between principal and agent (Holmstrom, 1979) and agents have a systematic incentive to overstate or understate private information (Lewis & Sappington, 1989), the structure of optimal contracting between the two parties must invariably incorporate the available information regarding preferred outcomes. This information constitutes an "ex post settling up" (Fama, 1980) or standards for minimally acceptable action (Harris & Raviv, 1979).

In the modern corporation, the implications of incentive alignment are twofold. First, some type of monitoring of the actions of top management, either through direct observation or an agent, has a positive outcome for the owners of the firm. Second, contracting with top management also has a positive outcome, especially if the contract is tied to firm performance. Contractual relationships tied to the firm's equity appreciation are particularly effective.

Managerial capitalism. The principal-agent problem, stated in its "pure" form, is applicable to the modern corporation. "Since the relationship between the stockholders and manager of a large corporation fit the definition of a pure agency relationship it should be no surprise to discover that the issues associated with the 'separation of ownership and control' are intimately associated with the general problem of agency"

(Jensen & Meckling, 1976, p.309). The separation of ownership from control argument stems from the managerialist tradition (Berle & Means, 1932; Marris, 1964).

An early important reference to the modern corporate structure was first published by Adam Smith (1776). He details the beginning of the firm as it is understood today. In the process of forming the modern corporation, two distinct groups were created: shareholders and managers. On the one hand shareholders, bound together by the corporation, amassed the wealth necessary to conduct commerce on an (for the time) unprecedented scale. Directors, on the other hand, were entrusted by the shareholders to run the corporation in the shareholder's best interest. This situation may create a conflict of interest. The shareholders of the joint-stock company wanted to increase their wealth through passive investment in the corporation. The directors may wish to conduct business in their own best interest, rather than in the interests of their shareholders.

This theme is developed by Berle & Means (1932). They postulated the wide dispersion of ownership in the modern corporation was leading to a separation between ownership and control. Before the modern corporation, an owner had an interest in the firm, had power over the firm and acted with respect to the firm. Generally, one person owned and managed the entire operation. In the modern corporation " . . . the second function, that of having power over an enterprise, has become separated from the first" (Berle & Means, 1937, p.120). This idea, that the growth and success of the corporation led to a separation of ownership from control, has become known as the Berle-Means Hypothesis.

The structure of the corporation leads to the situation that was first described by Adam Smith: ownership without control and control without ownership. This leads Berle & Means (1932) to consider the relationship between the two.

> When the owner was also in control of his own enterprise he could operate it in his own interest and the philosophy surrounding the institution of private property has assumed he would do so. This assumption has been carried over to present conditions and it is still expected that the enterprise will be operated in the interests of the owners. But have we any justification for assuming that those in control of a modern corporation will choose to operate it in the interests of the owners? The answer to this question will depend on the degree to which the self-interest of those in control may run parallel to the interests of ownership and, insofar as they differ, on the checks on the use of power which may be established by political, economic or social conditions (p.121).

They also note that the desire for personal profit may not be the only factor motivating management. Prestige, power or the gratification of professional zeal may also influence the behavior of the manager. However, if personal profit is the goal of management " . . . we must conclude that the interests of control are different from and often radically opposed to those of ownership; that the owners most emphatically will not be served by a profit-seeking control group" (Berle & Means, 1932, p.122).

That the law holds management to reasonable rules of conduct (and hence constrains managerial discretion) is no surprise. Yet within these guidelines, management may have virtual autonomy. The law states that management must exhibit: (1) a decent amount of attention to business; (2) fidelity to the interests of the corporation and (3) at least reasonable business prudence (Berle & Means, 1932, p.221). Yet control of the corporation resides in no firmer a legal principle than " . . . the doctrine of the dominant

stockholder" (Berle & Means, 1932, p.235). If stockholders could gain agreement of a majority or have a substantial interest, then control could effectively reside with the stockholders. Due to the dispersion of ownership interests, however, control often resides exclusively with management.

The aggregate effect on the small, minority stockholder then becomes one of exclusion. "The stockholder is therefore left as a matter of law with little more than a loose expectation that a group of men, under a nominal duty to run the enterprise for his benefit and that of others like him, will actually observe this obligation" (Berle & Means, 1932, p.277). The net result is to make the interest of the stockholder subservient to the will of a controlling group of managers. This occurs in spite of the fact that the firm's capital comprises the contributions of many stockholders.

Managers will then tend to maximize the growth and the size of the firm, subject to constraints imposed by capital markets and others (Marris, 1964, p.47). The mechanism for pursuing growth may be in the maximization of revenue (Baumol, 1967, p.45), rather than profitability. Maximizing size, rather than profit, has several positive outcomes for managers. Organizational size has been shown to be a determinant of executive compensation (Roberts, 1959; Ciscel & Carroll, 1980; Agarwal, 1981). The reason for this, Simon (1957) argues, is that executive salaries are determined by internal "consistency" and norms of proportionality with subordinates. The larger the organization and number of levels of subordinates, the larger the relative compensation for that level in the hierarchy.

Increased firm size also leads to increased power and status for managers (Thompson, 1961), which is a valued outcome (Marris, 1964, p.48). The increased size of the firm also helps ensure firm survival (Galbraith, 1967), thus enhancing the job security of executives (Marris, 1964). Managers pursue organizational size and growth because of the power, salary, status and security that come with attaining these objectives (Marris, 1964).

The empirical evidence surrounding the managerialist position is very strong. Two of the most heavily cited are Larner (1966) and Boudreaux (1973). Larner (1966) confirms the existence and spread of the separation of ownership and control. "...it would appear that Berle and Means in 1929 were observing a "managerial revolution" in process. Now, 30 years later, that revolution seems close to complete, at least within the range of the 200 largest nonfinancial corporations" (Larner, 1966, p.787). Boudreaux (1973) extends the managerialist link to performance of the firm. "As predicted by the managerial models, owner-controlled firms' rates of return are higher . . . and more variable . . . than the returns of manager-controlled firms" (Boudreaux, 1973, p.368).

McEachern (1975) examines several important implications of managerialism for empirical research. One of the most important is his definition of corporate control. He proposes a new definition of corporate control, based on three different control types. These control types are determined by ownership structure:

(a) owner-managed (OM)

(b) externally-controlled (EC)

(c) manager-controlled (MC)

In owner-managed firms the principal shareholder in the firm is also the Chief Executive Officer. Power and ownership are both connected in the Chief Executive. In externally controlled firms there is a dominant shareholder who is not an executive of the corporation. A dominant outside shareholder can thus serve as a disinterested constraint on managerial discretion. In manager-controlled firms there is no dominant shareholder. Management operates with no outside constraint on their discretion. Owners are separated completely from control of the firm.

The difference between this definition and previous definitions is firms with a dominant stockholder are split into two types. Firms in which the dominant stockholder is also a manager are called owner-managed (OM), and firms in which the dominant stockholder is not part of management are called externally-controlled (EC). OM and EC firms, however, are very similar in the incentives which are offered to top managers.

McEachern's results are consistent with the managerialist position: (1) The incentive structures of managers in EC firms are more designed to maximize profits and market value than managers in MC firms. (2) Firms with a dominant stockholder produce a higher rate of return than firms without a dominant stockholder. (3) OM firms are more risk taking and retain higher amounts of earnings than EC firms. Outside shareholders with a controlling equity stake in the firm provide incentives that align management and owner interests (McEachern, 1975).

The empirical question of the quantity of stock effectively required to assume control of the firm has been the subject for considerable research (Zeitlein, 1974; Hunt, 1986). In the first study that empirically addressed this question, Berle & Means (1932)

arbitrarily used a 20 percent criterion. "The dividing line between minority and management control was drawn roughly at 20 percent, though in a few special instances a smaller holding was credited with the power of control" (Berle & Means, 1932, p.93).

The proportion of stock required to exercise effective control, therefore, may be quite small (McEachern, 1975; Gomez-Mejia, Tosi & Hinkin, 1987; Tosi & Gomez-Mejia, 1989). Researchers have begun using a lower cutoff criterion, reflecting an even larger modern corporation and a proportionate dispersion of equity. Firms in which as little as five percent of the stock is owned by an outside individual may be sufficient to exercise control (Gomez-Mejia, Tosi & Hinkin, 1987; Tosi & Gomez-Mejia, 1989; Wade, O'Reilly & Chandratat, 1990; Tosi & Gomez-Mejia, 1994).

The managerialist argument also has implications for the strategy of the firm. Amihud & Lev (1981), for example, reason management-controlled firms may engage in conglomerate merger activity in order to maximize the size of their firms and reduce their overall exposure to risk (e.g., employment risk). Similarly, management may engage in excessive diversification risk (which is a risk to equity holders) in order to reduce their income risk (e.g., maximize salaries, rather than returns to investors). Their empirical results are consistent with managerialist expectations. "First, manager-controlled firms were found to engage in more conglomerate acquisitions than owner-controlled firms. Second, regardless of the means by which a firm achieves diversification, the operations of manager-controlled firms were found to be more diversified than those of owner-controlled firms" (Amihud & Lev, 1981, p.615).

Managerial capitalism has stimulated a rich vein of recent research (see Eisenhardt, 1989, for a literature review). Ownership and ownership structure has also been linked to corporate productivity (Hill & Snell, 1989), takeover risk (Singh & Harianto, 1989; Wade, Reilly & Chandratat, 1990), corporate restructuring (Bethel & Liebeskind, 1993) and executive compensation (Ciscel & Carroll, 1980).

Research Hypotheses

Given the body of literature that has demonstrated the ownership structure's effect on a range of different strategies, concluding it should also affect the relationship between organization strategy and structure also seems reasonable. In this section specific hypotheses are developed about this relationship. They articulate agency and managerialist implications for strategy/structure research.

Organizational Size

The essence of the Berle-Means (1932) hypothesis is the growth and success of the modern corporation has led to a separation of ownership from control. Firms that have grown to the size of the modern Fortune 500 should therefore be increasingly dispersed in their stock ownership. Larner (1966) presents empirical evidence that suggests support for this idea. His results " . . . suggests that a firm may reach a size so great that, with a few exceptions, its control is beyond the means of any individual

or group" (Larner, 1966, p.786). The size of a corporation may become so large that no individual is capable of retaining control.

In the largest of these corporations, management should almost entirely control the firm. Smaller, leaner firms should correspondingly be more likely to be owner-controlled, due to insufficient levels of stock dispersion to dislodge the owner-manager or passive owner.

HYPOTHESIS 1

The larger the organization the more highly dispersed the firm's equity.

Sheer organizational size should also have an impact on the firm's product (Jacquemin & Berry, 1979) and market (Geringer, Beamish & daCosta, 1989) diversification strategies. The size and scope of organizational activities will ultimately exhaust the possibilities for any one market niche. Also, " . . . the effect of size on either related diversification or unrelated diversification strategy is positive in the sense that both strategies possible imply a growing or expanding firm" (Pavlik & Belkaoui, 1991, p.101). Thus, the larger the size of the organization, the greater the probability that the organization will seek growth through product diversification, both related and unrelated to their core businesses.

HYPOTHESIS 2

The larger the organization the greater the related diversification.

HYPOTHESIS 3

The larger the organization the greater the unrelated diversification.

Increasing size should also affect the geographic scope of firm operations (Geringer, Beamish & daCosta, 1989). In particular, internationalizing or globalizing the firm's activities may allow the firm to maximize its overall level of profits and to reduce risk (Rugman, 1979). The larger the organization, the greater the internationalization.

HYPOTHESIS 4

The larger the organization the greater the internationalization of firm operations.

Ownership Structure

Management provides strategic direction for the organization. While size affects diversification activities, it is ultimately management that provides the firm's strategic direction. Agency theory (Jensen & Meckling, 1976; Fama, 1980) suggests management-controlled firms will be more likely to engage in shirking and perquisite consumption than owner-controlled firms. One mechanism available to management that provides greater salary, employment security and opportunities for perquisite consumption is unlimited growth through unrelated diversification.

Management-controlled firms may then be more likely to engage in unrelated diversification activities than owner-controlled firms. Hill & Snell (1988), for example, find that when managers dominate the firm, diversification strategies are favored (P.577). Management-controlled firms may be less likely to diversify into businesses related to the firm's activities, although related diversification may be more profitable for

shareholders. Unrelated diversification may provide faster and easier opportunities for corporate growth, but may also reduce returns for equity holders. Management-controlled firms should then diversify in a way opposite to the pattern demonstrated to maximize shareholder wealth: away from opportunities for related diversification and toward opportunities for diversification unrelated to the firm's core businesses.

HYPOTHESIS 5

Equity dispersion will negatively affect related diversification.

HYPOTHESIS 6

Equity dispersion will positively affect unrelated diversification.

Because internationalizing or globalizing the firm's activities allows the firm to maximize its overall level of profits and to reduce risk (Rugman, 1979; Geringer, Beamish & daCosta, 1989; Kim, Hwang & Burgers, 1989), owner-controlled firms should seek these market opportunities. Management-controlled firms may avoid these market diversification opportunities, preferring to pursue diversification through unrelated products in order to increase firm size. Owner-controlled firms may seek these international market opportunities in order to maximize shareholder returns. Consequently, owner-controlled firms should be more internationally diverse, while management-controlled firms should remain in domestic markets.

HYPOTHESIS 7

Equity dispersion will negatively affect the internationalization of firm operations.

Organizational Structure

Organizational size has long been regarded as a predictor of organizational structure (Pugh, et. al., 1969; Child, 1973; Grinyer & Yasai-Ardekani, 1981). This result has been largely supported in current research (Palmer, Friedland, Jennings & Powers, 1987; Hill, 1988; Yasai-Ardekani, 1989). Therefore, this study regards size as an antecedent to organizational structure. M-form firms should be larger than U-form firms (e.g., Palmer, et. al., 1987). The smaller the firm, the more that it will have a functional (e.g., U-Form) structure. The larger the firm, the more likely that the firm will have adopted an M-Form structure.

HYPOTHESIS 8

Organizational Size will positively affect the tendency to adopt an M-Form organization structure.

M-Form firms should not only be larger, but they should also be more industrially diverse (Palmer, et. al., 1987). As firms grow larger and adopt a more aggressive posture regarding diversification, the strains of administering the resulting structure becomes increasingly unwieldy and subject to control loss (Williamson, 1975). Diversity is a critical predictor of organizational structure (Hill, 1988). This result should hold for related and unrelated diversification; the more diverse the firm, the greater the likelihood the firm will adopt an M-Form structure. Structure follows strategy (Chandler, 1962).

In addition, the more international the firm's operations, the more likely the firm will adopt a multidivisional structure. Multidivisional structures are better capable of

handling dispersed geographic operations than functional structures (Rumelt, 1974), which become increasingly unmanageable due to internationalization.

HYPOTHESIS 9a

Related diversification will positively affect the tendency to adopt an M-Form organization structure.

HYPOTHESIS 9b

Unrelated diversification will positively affect the tendency to adopt an M Form organization structure.

HYPOTHESIS 9c

Increasing internationalization of firm operations will positively affect the tendency to adopt an M-Form organization structure.

What, then, should be the relationship between control of the organization and its structure? Agency theory argues firms owner-controlled firms exhibit higher financial performance than management-controlled firms (McEachern, 1975). Williamson, on the other hand, argues that the multidivisional form of organization is more nearly associated with profit maximization than functional structures (Williamson, 1975, p.150). The intersection of these two perspectives, Agency theory and the Strategy-Structure school, produces the following proposition: owner-controlled firms should seek to organize into multidivisional structures, since the M-Form structure should be (by Williamson, 1975) more efficient from a performance perspective. Management-controlled firms, on the other hand, should attempt to retain the U-Form structure of organization, as the functional organizational is amenable to increasing levels of control loss, and therefore

shirking and perquisite consumption by top management. Expressed differently, increasing dispersion of stock ownership should negatively affect the tendency to divisionalize the firm.

HYPOTHESIS 10

Equity dispersion will negatively affect the tendency to adopt an M-Form organization structure.

Organizational Performance

The evidence regarding the performance implications of firm diversification is remarkably clear. Firms that are related diversifiers have been demonstrated to be superior performers to unrelated diversifiers (Rumelt, 1975; Rumelt, 1982; Bettis, 1981; Palepu, 1985; Amit & Livnat, 1988; Lubatkin & Rodgers, 1989). Related diversifiers should be strong financial performers compared to unrelated diversifiers, which should exhibit weaker financial performance than related diversified firms.

HYPOTHESIS 11

Related diversification will positively affect organizational performance.

HYPOTHESIS 12

Unrelated diversification will negatively affect organizational performance.

The performance effects of internationalization are positive (Rugman, 1979; Geringer, Beamish & daCosta, 1989; Kim, Hwang & Burgers, 1989). The degree of internationalization has been demonstrated to be positively related to firm performance (Geringer, Beamish & daCosta, 1989). These results are hypothesized due to more stable earnings streams, risk reduction and market imperfections (Rugman, 1979). Therefore, the more international the firm's operations, the better the performance.

HYPOTHESIS 13

Internationalization of the firm's operations will positively affect organizational performance.

Agency theory and managerial capitalism predict that control of the organization should also have performance implications. Owner-controlled firms should exhibit higher financial performance than management-controlled firms (McEachern, 1975). Owner-controlled firms exhibit higher levels of monitoring and incentive alignment for top management than firms that are management-controlled (Tosi & Gomez-Mejia, 1989). Higher monitoring and incentive alignment between shareholders and managers in these owner-controlled firms should exhibit a positive influence on relevant organizational outcomes, namely firm performance.

HYPOTHESIS 14

Owner-controlled firms will have higher performance than management controlled firms.

Williamson's (1975) M-Form Hypothesis posits the M-Form (or multidivisional) type of structure is the superior organizational form. Firms that are M-form in structure should then be better performers than U-Form organizational structures. U-form structures should be the least efficient organizational structures.

HYPOTHESIS 15

M-Form organizational structures will be more effective than U-Form organizational structures.

Summary

This chapter has provided an overview and theoretical foundation for the present study. An integrative research model was presented, the theoretical foundations of the model were explored, and specific research hypotheses were developed and explained.

The basic premise of the research hypotheses is that ownership has become separated from control of the corporation, and this separation has implications for the firm's strategy, organizational structure and performance. Management-controlled firms should select strategies and organizational structures that facilitate their opportunities for shirking and perquisite consumption. Owner-controlled firms should select strategies and organizational structures that maximize returns to shareholders. As a result, owner-controlled firms should have higher performance than management-controlled firms.

CHAPTER 2
METHODS

This chapter presents the research methodology for testing of the hypotheses from Chapter One. The relevant sample, measurement of variables, models and statistical methods are described. The data collection methodology and organizational structure reliability study are presented in the measures section of this chapter.

Sample

The group of firms studied was the 500 largest industrial corporations in the United States for 1987 as defined by Fortune magazine (Fortune, 1988). To qualify as a member of the Fortune 500 a company must be (1) based in the United States, (2) derive more than 50 percent of their sales from manufacturing and/or mining, (3) be a publicly traded corporation and (4) be among the 500 largest of these corporations in the United States in terms of consolidated sales (Fortune, 1988; Rumelt, 1974). The reason this sample was chosen for this study is rather straightforward. This is the same group of firms that was used earlier by Rumelt (1974) to test Chandler's (1962) hypotheses. It is also the sample of firms used by Montgomery (1982), Williamson & Bhargava (1972) and Keats & Hitt (1988). The Fortune 500 was then selected in order to replicate the

results of previous research as well as test this study's hypotheses regarding the impact of ownership structure on firm strategy and organizational structure. To be included in this research study, there were several other requirements that a company had to meet: (1) the company had to be American owned, so that documents relating to its ownership structure (e.g., SEC Proxy statements) were available, (2) the company needed to be a member of the Fortune 500 from 1987 through 1992, so that five-year average performance indices could be created, and (3) there could be no inconsistency in public reporting of the company (e.g., company was reported by all major data sources for the study). After accounting for these additional hurdles, a final sample of 300 firms was left. (See Appendix One for the list of companies included in this sample).

In 1987, the Fortune 500 produced $1.87 trillion in sales, $90.6 billion in profits and employed 13.1 million people. Total assets of the Fortune 500 was $1.7 trillion and earned shareholders a median return on equity of 13.2 percent. The largest of the Fortune 500, General Motors, had sales of $101.8 billion and earned profits of $3.5 billion in 1987. Descriptive statistics of the study sample are listed in Table 2-1.

The major data sources for the study were as follows: Fortune (1988; 1993), Value Line, Securities and Exchange Commission Filings (10k, 10q, Proxy, and Annual Report), The U.S. Census of Manufactures, and Compustat CD-ROM. Once the initial sample was culled from Fortune articles describing the Fortune 500, it was compared against Value Line, Compustat and S.E.C. Filings to ensure data availability. Companies that were not available across all data sources were eliminated. This included subsidiaries

TABLE 2-1
DESCRIPTIVE STATISTICS OF FIRMS IN THE SAMPLE

Ownership	Assets (Mil$)	Number of Employees (1,000s)	Sales (Mil$)	Size	ROI	Return on Common Stock	Change in Market Value	Perform-ance	N
Owner-Controlled	2206.46 (2925.78)	23.68 (70.11)	2876.09 (8395.01)	-0.32 (1.28)	7.81 (9.39)	13.33 (13.74)	12.87 (16.64)	0.03 (1.51)	163
Management-Controlled	5811.20 (9276.36)	43.31 (44.76)	6162.54 (9545.14)	0.38 (1.65)	8.90 (8.13)	13.40 (13.21)	10.84 (13.20)	0.01 (1.34)	137
All Organizations	3862.69 (6872.49)	32.69 (60.52)	4386.08 (9075.86)	0.00 (1.49)	8.31 (8.84)	13.36 (13.47)	11.93 (15.15)	0.01 (1.42)	300

Note: Standard Deviations in parentheses.

of foreign owned or controlled corporations, and corporations privatized, liquidated, or sold during the period between 1987 and 1992.

Measures

This section describes the measurement of each variable in this study. These measures are organization size, ownership structure, diversification (related, unrelated and degree of internationalization), organizational structure and finally organizational performance.

Organizational Size

Some standard measures of firm size include annual sales, total assets and number of employees. These measures are frequently used as proxies for size (Ciscel & Carroll, 1980; Tosi & Gomez-Mejia, 1994). Size was measured in this study as a composite index of firm sales, assets and number of employees. These measures were standardized and weighted by factors from a principal components analysis of the three variables. The first principal components factor accounted for 74.9 percent of the variance in these three measures. The factor loadings of assets, sales and number of employees were 0.5489, 0.6462 and 0.5301, respectively. (Appendix 3 reports the principal components factor analysis used to create the composite size index).

Ownership Structure

Firms in the sample were classified into two ownership categories, owner-controlled and management-controlled. Firms classified as owner-controlled firms had an outside shareholder (e.g., not an officer of the corporation) that held at least 5 percent of the firm's outstanding voting stock. To be classified as owner-controlled, this shareholder was (1) not involved in the actual management of the corporation, (2) did not deny beneficial ownership of the shares, and (3) did not report only disposition rights to the shareholdings. Firms which were owner-managed had a C.E.O. who held at least 5 percent of the firms voting stock. These 43 firms were also classified as owner-controlled (McEachern, 1975).

Firms which were classified as management-controlled had no single stockholder who reported a five percent equity stake in the corporation.

Strategy

Three elements of the firm's strategy were measured. Two were product strategies, related diversification and unrelated diversification. The third was a market strategy, the degree of international operations.

Related diversification. Related diversification was measured according to a method developed by Wood (1971): narrow spectrum diversification (NSD). NSD is defined as expansion, other than vertical integration, outside of the firm's 4-digit primary SIC code, but within a 2-digit SIC code industry. Narrow spectrum diversification is

viewed as diversification closely related to a firm's core business (Varadarajan & Ramanujam, 1987). This method of measuring a firm's related diversification has been shown to have convergent validity and predictive validity to organizational performance (Lubatkin, et. al., 1993).

Unrelated diversification. Unrelated diversification was also measured according to method developed by Wood (1971): broad spectrum diversification (BSD). BSD is defined as expansion, other than vertical integration, into a different 2-digit SIC code industry. Broad spectrum diversification is viewed as diversification less closely related to the firm's core business (Varadarajan & Ramanujam, 1987). This method of measuring a firm's unrelated diversification has been shown to have convergent and predictive validity (Lubatkin, Merchant & Srinivasan, 1993).

Internationalization. The degree of firm market internationalization was measured as the ratio of foreign subsidiary sales to total worldwide sales for the firm (Geringer, Beamish & daCosta, 1989). Use of the internationalization measure was used to capture the benefits of market and geographic diversification (Geringer, Beamish & daCosta, 1989).

Organizational Structure

Firms in the sample were classified into one of four organizational structure types: (1) U-Form, (2) Intermediate U-Form, (3) Intermediate M-Form, and (4) M-Form. These classifications follow Williamson's (1975) approach and are similar to measures suggested by the Rumelt (1974) typology. These structure types represent the functional

organization structure, a functional with subsidiaries structure, a geographical M-Form structure, and the product-division organizational structure, respectively (Rumelt, 1974). The classification scheme, as a result, classifies firms into U-Form and M-Form organizational structures, with two intermediate stages.

The U-Form organization is organized along the lines of major business functions, such as finance, production, marketing, etc. General management occurs solely at the uppermost level of the organization, and the coordination of the functional units is one of its primary responsibilities (Rumelt, 1974). Vertically integrated firms fall into this category, provided the units are sufficiently process-linked and do not operate as autonomous business units. This is the U-Form organization of Williamson (1975) and the functional structure of Rumelt (1974).

An intermediate U-Form is very similar to the U-Form (functional) organization except the organization has branched out into a line of business separate from its functional core. This type of organization is common in vertically integrated firms with some side activities (Rumelt, 1974). Large oil companies with a chemical subsidiary fall into this category. The small subsidiary may be a line of business peripheral to the firm's core activities, or may be completely unrelated. The distinguishing characteristic is that general managers of the product division are organizationally on the same level or below the functional managers (Rumelt, 1974).

An intermediate M-Form organizational structure is organized similar to the M-Form, except along geographic lines. Its structure consists of a headquarters office and a group of operating divisions, each having the responsibility and resources needed to engineer, produce, and market a product or set of products in a different geographic area

(Rumelt, 1974). Certain types of products, such as dairy products or concrete, lend themselves well to this type of geographic arrangement. The geographic areas typically revert to a functional or divisionalized arrangement. This arrangement is M-Form in nature, but not fully developed (Williamson, 1975).

An M-Form structure is the classical multidivisional organizational structure (Chandler, 1962) or product-division arrangement (Rumelt, 1974). This type of organization has a central office accompanied by a group of operating divisions, with each division having the responsibility and resources necessary to engineer, produce, and market a product or set of products (Rumelt, 1974). There is also typically a separation of operating from strategic decision-making (Williamson, 1975), with the central office relegated to the role of strategic decision-maker. The divisions may also be clustered into groups or strategic units, and another level of management installed between the divisions and the head office. At some point below the division level the form of organization reverts to a functional or geographic form (Rumelt, 1974).

The structural classification scheme was then scored from 1 to 4 in the following order: (1) U-Form, (2) Intermediate U-Form, (3) Intermediate M-Form, and (4) M-Form. Following Williamson (1975), this ordering reflects decreasing transactions costs. Transactions costs are internal costs within the firm that are higher in the U-Form firm because transactions have to cross major divisional or departmental lines. Transactions costs should be substantially lower in the M-Form firm because it is more efficient (Williamson, 1975). These categories also reflect decreasing levels of structural complexity. The decreased structural complexity of the M-Form firm reduces internal transactions costs. Keats & Hitt (1989, p.581), among others (Chandler, 1962; Grinyer

& Yasai-Ardekani, 1981; Wrigley, 1970), suggest "a critical dimension of structural complexity is the degree to which an enterprise has decentralized and specialized its decision-making processes, as reflected in its level of divisionalization".

Similar systems of coding have been used in a number of studies (Wrigley, 1970; Grinyer & Yasai-Ardekani, 1980; Grinyer, Yasai-Ardekani & Al-Bazzaz, 1980; Keats & Hitt, 1989). Keats & Hitt (1989), for example, use the Rumelt (1974) structural typology as a basis for defining ordered categories. They imposed linearly equidistant numbers to those ordered categories (Labovitz, 1970), and coded the Rumelt (1974) typology. "The result is similar to a Likert scale, which is often used in such analyses" (Keats & Hitt, 1989, p.581). This study follows a similar methodology.

The data source for classification of the study sample by structure type was company annual reports and to a lesser extent 10K statements. Classification of the study sample into the four categories was performed by the author and two independent undergraduate coders. The coders were trained in the classification typology and then instructed to classify the sample, without reporting their conclusions to each other or the author. Upon completion, the results were averaged, and the average rating was used as the classification for each company.

The reliability of the raters of the structural classification scale was calculated using the Spearman-Brown Prophecy (Guilford, 1965) and Cohen's Kappa (Cohen, 1960) formulas. The Spearman-Brown Prophecy (Guilford, 1965) reliability estimate for the raters was 0.70. The percentage of two-way agreement (Gellert, 1955) among the three raters, however, was 80 percent, suggesting that the Spearman-Brown Prophecy reliability estimate is conservative (Guilford, 1965). The Cohen's Kappa statistic was

0.4116, representing fair to good agreement among the raters beyond chance (Fleiss, 1981). (Appendix 2 reports the rater intercorrelations and reliability statistics).

Performance

Performance was measured by three separate indicators. These three indicators were: (1) average return on investment (ROI), (2) average return on assets (ROA) and (3) average return on equity (ROE). These variables represented the average of these measures for 1988 through 1992. These indicators are industry adjusted measures of firm performance. Each indicator was computed by subtracting the average industry performance for that time period at the four-digit SIC code level for each respective measure from each firm's performance measure. This measure controls for industry effects on performance differences. Thus, these measures represent deviation scores from industry averages of firm performance.

The five-year period (1988-1992) for which the performance variables were collected represented the time period following the year (1987) in which the other variables in the study, environment, size, ownership structure, strategy and organizational structure, were collected. Lagging the performance measures in this manner added a time dimension to this study, further supporting the direction of causal flow predicted by the research theoretical model. The five-year time period represents a reasonable planning horizon for the organizations studied (Keats & Hitt, 1988), and also limits the influence of short-term irregularities in firm performance (McEachern 1975).

Industry Control Variables

Industry effects have become a source of concern for strategic management scholars (Rumelt, 1982; Dess, Ireland, & Hitt, 1990). "...there is sufficient evidence to suggest that industry structural characteristics have important effects on strategic variables and firm performance" (Dess, Ireland & Hitt, 1990, p.9). Failure to control for industry effects, especially in multiple industry studies, has the potential to create misleading interpretations (Rumelt, 1982). One method suggested to control for industry effects in multiple industry studies is through measures of environmental dimensions indicative of industry dimensions and/or structure, such as the organizational task environment (Dess, Ireland, & Hitt, 1990, p.20).

External influences differ depending upon the specific nature of the organizational task environment. These task environments are hypothesized to influence the internal organization of the firm, namely firm size (Pfeffer, 1972), strategy (Jauch, Osborn and Glueck, 1980; Bourgeois, 1980; Miller, 1987) structure (Tung, 1979; Dess & Origer, 1987; Yasai-Ardekani, 1989), and outcomes such as firm performance (Rumelt, 1982; Keats & Hitt, 1989). Organizational task environments impose contingencies and constraints on the organization (Thompson, 1967).

The work of James Thompson (1967) regarding the nature of organizational task environments is reflected in the work of Dess & Beard (1984). Dess & Beard (1984) reduced and operationalized previous research of the organizational task environment to three dimensions: munificence (capacity), dynamism (stability-instability, turbulence) and complexity (homogeneity-heterogeneity, concentration-dispersion). Munificence

represents the extent to which the environment can sustain growth. Dynamism represents instability in the environment, or unpredictability. Complexity refers to the heterogeneity or range of an organization's activities. It also relates to organizational density and the extent of organizational interdependence (Dess & Beard, 1984). The Dess & Beard (1984) dimensions have been replicated, refined and cross-validated in other research (Rasheed & Prescott, 1992; Harris, 1992).

Munificence. Munificence was operationalized with four variables: growth in total sales, growth in the price-cost margin, growth in total employment and growth in value added by manufacture. Following Dess & Beard (1984), growth was calculated as rate of growth (regression slope), divided through by the mean of the dependent variable. This calculation enabled the measures to be standardized for industry size. (Appendix 4 describes each variable and their respective method of measurement). These measures of growth were calculated for each primary SIC code in the sample for the years 1978-1987.

Dynamism. Dynamism was operationalized with 3 variables, instability in total sales, instability in the price-cost margin and instability in value added by manufacture. These variables represented the standard errors of the rate of growth in their respective measures, again divided through by the mean of the dependent variable to account for industry size. Tosi, Aldag, and Storey (1973) utilize a similar measure of volatility, and the present approach is consistent with the Tosi, et.al. (1973) view of instability as unsystematic, unpredictable change (Dess & Beard, 1984). (Appendix 4 describes each of the three industry variables and their respective method of measurement). These

measures of instability were calculated for each primary 4-digit SIC industry in the sample for the years 1978-1987.

Complexity. The Complexity dimension was operationalized with two variables, geographical concentration of total employment and geographical concentration of industry establishments. The Gibbs-Martin formula (Gibbs and Martin, 1962) was used to calculate these two variables. These measures of industry concentration were calculated for each primary 4-digit SIC industry in the sample for the year 1987.

Solution and factor scores. The source for these variables were later editions of the material used in the original Dess & Beard (1984) study: the U.S. Bureau of the Census (1987). The time period that these variables were drawn from was 1977-1987. The measures of munificence, dynamism and complexity can be conceptualized in this study as point estimates of industry trends for 1987 on these environmental dimensions.

A confirmatory factor analytic model was fit to the data using LISREL 8 (Joreskog & Sorbom, 1993). The model, with 20 degrees of freedom, had a Chi-Square of 26.71 ($p=0.14$). Other fit indices for the model include: Goodness of fit index (GFI) = 0.98, Adjusted goodness of fit index (AGFI) = 0.95, Normed fit or Bentler-Bonnet index (NFI) = 0.99, Non-Normed or Tucker-Lewis index (NNFI) = 1.00. These measures indicate excellent fit for the model. The Bentler-Bonnett and Tucker-lewis indices indicate an almost exact fit to the data.

On the basis of the confirmatory factor analysis, factor scores for the three environmental dimensions were prepared. These factor scores were then added as industry controls in the models. (Appendix 5 describes the loadings and factor scores).

Specification of the Models to be Tested

The models in this section are tested using Ordinary Least Squares regression. The following models are used to test the specific hypotheses outlined in Chapter 1.

Model One. The first hypothesis states that organizational size will positively affect equity dispersion. The model to test this hypothesis is:

$$Y_i = X_iA + Z_iB + e_i$$

where

Y = a vector of binary response variables indicating whether the firm is owner or manager-controlled.

X = a vector of observations measuring the size of each firm.

Z = a matrix of characteristics representing industry effects.

A & B = coefficient vectors.

e = an error term that includes the unmeasured causes of Y.

Model Two. The second and fifth hypotheses detail effects which influence the related diversification strategy of the firm. Organizational size is hypothesized to positively affect related diversification, while separation of ownership from control of the firm is hypothesized to negatively affect related diversification. The appropriate model to test these hypotheses is:

$$Y_i = O_iC + X_iA + Z_iB + e$$

where

Y = a vector measuring the extent of related diversification for each firm.

O = a matrix of dummy variables representing ownership structure.

X = a vector of observations measuring the size of each firm.

Z = a matrix of characteristics representing industry effects.

A,B & C = coefficient vectors.

e = an error term that includes the unmeasured causes of Y.

Model Three. The third and sixth hypothesis detail effects which influence the unrelated diversification strategy of the firm. Organizational size is hypothesized to positively affect unrelated diversification, while the separation of ownership from control of the firm is hypothesized to positively affect unrelated diversification. The appropriate model to test these hypotheses is:

$$Y_i = O_iC + X_iA + Z_iB + e$$

where

Y = a vector measuring the extent of unrelated diversification for each firm.

O = a matrix of dummy variables representing ownership structure.

X = a vector of observations measuring the size of each firm.

Z = a matrix of characteristics representing industry effects.

A,B & C = coefficient vectors.

e = an error term that includes the unmeasured causes of Y.

Model Four. The fourth and seventh hypotheses detail effects that influence the internationalization of firm operations. Organizational size is hypothesized to positively affect internationalization, while the separation of ownership from control of the firm is hypothesized to negatively affect internationalization. The appropriate model to test these hypotheses is:

$$Y_i = O_iC + X_iA + Z_iB + e$$

where

Y = a vector measuring the extent of the firm's international operations.

O = a matrix of dummy variables representing ownership structure.

X = a vector of observations measuring the size of each firm.

Z = a matrix of characteristics representing industry effects.

A,B & C = coefficient vectors.

e = an error term that includes the unmeasured causes of Y.

Model Five. Hypotheses eight through 10 are concerned with factors that influence the tendency for an organization to adopt a multidivisional structure.

It was hypothesized that the larger the organization, the greater the tendency to adopt a multidivisional structure. It was also hypothesized that, the greater the related and unrelated diversification, the greater the tendency to adopt a multidivisional structure. Likewise, the greater the internationalization of the firm's operations, the greater the tendency to adopt a multidivisional structure. Finally, owner controlled firms are hypothesized to adopt a multidivisional structure. The appropriate model to test these hypotheses is:

$$Y_i = O_iC + X_iA + R_iD + U_iF + I_iG + Z_iB + e$$

where

Y = ordered responses measuring the organizational structure of each firm.

O = a matrix of dummy variables representing ownership structure.

X = a vector of observations measuring the size of each firm.

R = a vector measuring the related diversification of each firm.

U = a vector measuring the unrelated diversification of each firm.

I = a vector measuring the internationalization of firm operations.

Z = a matrix of characteristics representing industry effects.

A, B, C, D, F, G = coefficient vectors.

e = an error term that includes the unmeasured causes of Y.

Model Six. Hypotheses 11 through 15 are concerned with the effects of various internal firm characteristics on firm performance. Related diversification and internationalization of operations was hypothesized to positively affect organizational performance, while unrelated diversification was hypothesized to negatively affect performance. Owner-controlled firms were hypothesized to have higher performance than management-controlled firms. Finally, multidivisional firms were hypothesized to be better performers than firms having simpler structures. The appropriate model to test these hypotheses is:

$$Y_i = O_iC + S_iG + R_iD + U_iF + I_iH + Z_iB + e$$

where

Y = a vector measuring the performance of each firm.

O = a matrix of dummy variables representing ownership structure.

S = a vector measuring the structural complexity of each firm.

R = a vector measuring the related diversification of each firm.

U = a vector measuring the unrelated diversification of each firm.

I = a vector measuring the internationalization of firm operations.

Z = a matrix of characteristics representing industry effects.

B, C, F = G, H coefficient vectors.

e = an error term that includes the unmeasured causes of Y.

This model will be run using each of the three dependent performance measures.

Summary

Ownership and the ownership structure are hypothesized to have effects on the strategy, structure and economic performance of the firm. The characteristics of the sample to test the hypotheses developed in Chapter One is described. The chapter details the measurement of all variables used in this study: organizational size, ownership structure, strategy (related product diversification, unrelated product diversification, market internationalization), organizational structure, organizational performance and industry controls (munificence, dynamism, complexity). The chapter specifies six ordinary least squares regression models.

CHAPTER 3
RESULTS

The results of the hypothesis tests in this chapter are grouped by the dependent variable. The correlation matrix for all variables used in the models is shown in Appendix 6. The regression coefficients, standardized betas and level of significance are shown for each independent variable, as well as the R-squared and adjusted R-squared for each model.

Ownership Structure

Hypothesis One suggested that, the larger the organization, the greater the dispersion of the firm's equity. This hypothesis was tested by regressing organizational size against the ownership structure of the firm. Table 3-1 shows the regression weights, standardized betas and significance of the variables in the model, including the three industry control variables munificence, dynamism and complexity. As shown in the model, size is a significant (Standardized Beta = 0.2423, $p < .01$) predictor of equity dispersion. The larger the firm, the greater the likelihood the firm is management-controlled.

TABLE 3-1
REGRESSION WEIGHTS, STANDARDIZED COEFFICIENTS AND SIGNIFICANCE OF THE MODEL TESTING HYPOTHESIS ONE

OWNERSHIP STRUCTURE

Variables	Regression Weight	Standardized Beta
Intercept	0.4638**	0.0000
Munificence	0.0216	0.0506
Dynamism	-0.0308	-0.0673
Complexity	-0.0103	-0.0162
Size	0.0798**	0.2423
R^2	0.0629**	
Adjusted R^2	0.0495**	

Note: $p < .05$ *
$p < .01$ **

Related Diversification

Hypothesis two proposes that larger organizations will have higher levels of related diversification. The larger the organization, the greater the levels of related diversification in which the firm will engage. Management-controlled firms should engage in less related diversification than owner-controlled firms. Hypothesis five proposes that greater equity dispersion will negatively affect the level of related diversification. Management-controlled firms should engage in less related diversification

than owner-controlled firms. Table 3-2 shows the regression weights, standardized betas and significance for each of the independent variables in the model, as well as the R-squared, adjusted R-squared and significance levels of the overall model.

As hypothesized, size is positively and significantly related (Standardized Beta = 0.1313, $p < .05$) to related diversification. The larger the firm, the higher the levels of related diversification. This supports hypothesis two. However, the ownership structure is not significantly related to levels of related diversification. The coefficient to ownership structure is positive, though this regression weight is not significant. This result does not support hypothesis five.

In this regression, one of the industry control variables, dynamism, is also negative and significant ($p < .01$). This result suggests firms that operate in dynamic environments engage in less related diversification than firms that operate in less dynamic (and therefore uncertain) industry environments. Firms that operate in dynamic environments may respond by focusing on their core business.

Unrelated Diversification

Hypothesis three proposes larger organizations will have higher levels of unrelated diversification. The larger the organization, the greater the levels of unrelated diversification in which the firm will engage. Hypothesis six proposes greater equity dispersion will positively affect the aggregate level of unrelated diversification.

TABLE 3-2
REGRESSION WEIGHTS, STANDARDIZED COEFFICIENTS AND SIGNIFICANCE OF THE MODEL TESTING HYPOTHESES 2 AND 5

RELATED DIVERSIFICATION

Variables	Regression Weight	Standardized Beta
Intercept	4.2193**	0.0000
Munificence	-0.1283	-0.0402
Dynamism	-0.8324**	-0.2425
Complexity	-0.3614	-0.0761
Size	0.3244*	0.1313
Ownership Structure	0.1492	0.0199
R^2	0.0740**	
Adjusted R^2	0.0575**	

Note: $p < .05$ *
$p < .01$ **

Management-controlled firms should engage in more unrelated diversification than owner-controlled firms. Table 3-3 shows the regression weights, standardized betas and significance for each of the independent variables in the model, as well as the R-squared, adjusted R-squared and significance levels of the overall model.

As hypothesized, size is positively and significantly related (Standardized Beta = 0.2697, $p < .05$) to unrelated diversification. The larger the firm, the higher the levels of unrelated diversification. This supports hypothesis three. Ownership structure is also

TABLE 3-3
REGRESSION WEIGHTS, STANDARDIZED COEFFICIENTS AND SIGNIFICANCE OF THE MODEL TESTING HYPOTHESES 3 AND 6

UNRELATED DIVERSIFICATION

Variables	Regression Weight	Standardized Beta
Intercept	7.6782**	0.0000
Munificence	-0.9290*	-0.1519
Dynamism	0.0390	0.0059
Complexity	-0.0413	-0.0045
Size	1.2762**	0.2697
Ownership Structure	2.6832**	0.1870
R^2	0.1591**	
Adjusted R^2	0.1441**	

Note: $p < .05$ *
$p < .01$ **

positively and significantly related to levels of unrelated diversification (Standardized Beta = 0.1870, $p < .05$). This supports hypothesis six. Management-controlled firms appear to engage in more unrelated diversification than owner-controlled firms. Managers may engage in unrelated diversification activities in order to maximize the size of the firm rather than organizational performance, and hence maximize their compensation and opportunities for perquisite consumption.

In this regression, one of the industry control variables, munificence, is also negative and significant (Standardized Beta = -0.9290, $p < .05$). This result suggests firms that operate in munificent (and thereby growing) environments engage in less unrelated diversification than firms that operate in less munificent industry environments. Firms that operate in munificent environments may not need to pursue unrelated diversification strategies due to the demands placed on them by a growing and vibrant industry environment.

Internationalization

Hypothesis four proposes larger organizations will have higher levels of international operations. The larger the organization, the greater the internationalization of the firm's operations. Hypothesis seven proposes greater equity dispersion will negatively affect the level of unrelated diversification. Management-controlled firms should engage in less internationalization of the firm's operations than owner-controlled firms. Table 3-4 shows the regression weights, standardized betas and significance for each of the independent variables in the model, as well as the R-squared, adjusted R-squared and significance levels of the overall model.

As hypothesized, size is positively and significantly related (Standardized Beta = 0.2482, $p < .05$) to the internationalization of firm operations. The larger the firm, the greater the tendency to engage in international operations. This supports hypothesis four. Ownership structure is not significantly related to internationalization of firm operations

TABLE 3-4
REGRESSION WEIGHTS, STANDARDIZED COEFFICIENTS AND SIGNIFICANCE OF THE MODEL TESTING HYPOTHESES 4 AND 7

INTERNATIONALIZATION

Variables	Regression Weight	Standardized Beta
Intercept	0.2163**	0.0000
Munificence	0.0099	0.0636
Dynamism	-0.0214	-0.1268
Complexity	0.0442**	0.1958
Size	0.0290**	0.2482
Ownership Structure	-0.0003	-0.0007
R^2	0.1055**	
Adjusted R^2	0.0888**	

Note: $p < .05$ *
$p < .01$ **

in this model. The result of the test of ownership structure on firm internationalization is therefore inconclusive. Hypothesis seven is not supported in this regression.

In this regression, one of the industry control variables, complexity, is positive and significant (Standardized Beta = 0.1958, $p < .01$). The increasing complexity (and therefore dispersion) of the industry environment positively affects the tendency of firms to internationalize their firm operations. Firms operating in complex environments may pursue internationalization in order to compete effectively with others in their industry.

Organizational Structure

Hypothesis eight proposes larger organizations will tend to adopt a multidivisional organizational structure. The larger the organization, the greater the likelihood it is M-Form. Hypotheses 9a, 9b and 9c each propose that as the firm diversifies, it is increasingly likely to adopt a multidivisional structure. This movement toward the M-form occurs regardless of whether the diversification is related, unrelated or market-based internationalization. The broader the strategic direction, the greater the likelihood the firm is multidivisional. Hypothesis 10 proposes dispersed equity concentration will negatively affect the tendency to adopt the multidivisional organizational structure. Owner-controlled firms should more readily adopt the M-Form than management-controlled firms. Table 3-5 shows the regression weights, standardized betas and significance for each of the independent variables in the model, as well as the R-squared, adusted R-squared and significance levels of the overall model.

Contrary to hypothesis, size is not significantly related to the organizational structure of the firm. While related diversification and internationalization are not significantly related to organizational structure, unrelated diversification is positively and significantly (Standardized Beta = 0.2121, $p < .01$) related to organizational structure. The greater the unrelated diversification of the firm, the greater the likelihood the firm will adopt a multidivisional structure. This supports Hypothesis 9b. Hypothesis 9a and 9c are not supported.

TABLE 3-5
REGRESSION WEIGHTS, STANDARDIZED COEFFICIENTS AND SIGNIFICANCE OF THE MODEL TESTING HYPOTHESES 8, 9 AND 10

ORGANIZATION STRUCTURE

Variables	Regression Weight	Standardized Beta
Intercept	2.8953	0.0000
Munificence	-0.0821	-0.0898
Dynamism	-0.2061**	-0.2104
Complexity	-0.0133	-0.0101
Size	0.0470	0.0695
Related Diversification	0.0186	0.0661
Unrelated Diversification	0.0304**	0.2121
Internationalization	0.5081	0.0872
Ownership Structure	0.2782*	0.1327
R^2	0.1430	
Adjusted R^2	0.1168	

Note: $p < .05$ *
$p < .01$ **

Ownership structure is significantly (Standardized Beta = 0.1327, $p < .05$) related to organizational structure, though not in the direction hypothesized. Management-controlled firms are more likely to adopt the multidivisional organizational structure, while owner-controlled firms are more likely to adopt or retain a functional (U-Form) organizational structure. Table 3-6 presents a cross-classification table of firms by ownership structure and organizational structure, which further illustrates the results for this sample. This result runs counter to expectation, since owner-controlled firms should operate their firms in such a way to lower transactions costs for the organization. Therefore, hypothesis 10 is not supported. The ownership structure-organizational structure relationship is in the direction opposite to the hypothesis. This result is further discussed in Chapter Four.

In this regression, one of the industry control variables, dynamism, is negative and significant (Standardized Beta = -0.2104, $p < .01$). The increasing dynamism (and therefore uncertainty) of the industry environment negatively affects the tendency of firms to adopt a multidivisional structure. Firms operating in dynamic environments may retain functional structures in order to better manage environmental uncertainty.

Performance

Hypothesis 11 proposes related diversification will positively affect organizational performance. The higher the levels of related diversification, the better the organizational performance. Hypothesis 12 proposes unrelated diversification will negatively affect

TABLE 3-6
CROSS-CLASSIFICATION TABLE OF ORGANIZATIONAL STRUCTURE AND OWNERSHIP STRUCTURE

Structure	Owner-Controlled	Management-Controlled	Total
Functional	27	7	34
Functional with Subsidiaries	18	8	26
Geographic Division	8	7	15
Product Division	110	115	225
Total	163	137	300

organizational performance. The greater the levels of unrelated diversification, the lower the performance of the firm. Hypothesis 13 proposes internationalization of the firm's operations will positively affect the firm's performance. The greater the levels of market internationalization, the better the performance of the firm. Hypothesis 14 proposes owner-controlled firms will be better performers than management-controlled firms. Hypothesis 15 proposes adoption of the multidivisional organizational structure will positively affect performance. Organizations that have adopted the M-Form should be better performers than firms with U-Form organizational structures. Tables 3-7 through 3-9 show the regression weights, standardized betas and significance for each of the

TABLE 3-7
REGRESSION WEIGHTS, STANDARDIZED COEFFICIENTS AND SIGNIFICANCE OF THE FIRST MODEL TESTING HYPOTHESES 11 THROUGH 15

ROI - DEVIATION FROM INDUSTRY AVERAGE

Variables	Regression Weight	Standardized Beta
Intercept	-4.1497	0.0000
Munificence	1.5605*	0.1779
Dynamism	0.0011	0.0001
Complexity	-0.9006	-0.0846
Org. Structure	-0.6971	-0.0820
Related Diversification	0.1820	0.0742
Unrelated Diversification	0.1138	0.0907
Internationalization	-1.1306	-0.0220
Ownership Structure	-2.0247	-0.1137
R^2	0.0620	
Adjusted R^2	0.0271	

Note: $p < .05$ *
$p < .01$ **

TABLE 3-8
REGRESSION WEIGHTS, STANDARDIZED COEFFICIENTS AND SIGNIFICANCE OF THE SECOND MODEL TESTING HYPOTHESES 11 THROUGH 15

ROA - DEVIATION FROM INDUSTRY AVERAGE

Variables	Regression Weight	Standardized Beta
Intercept	2.6168*	0.0000
Munificence	0.9515**	0.1875
Dynamism	0.3325	0.0611
Complexity	-0.6544	-0.0902
Org. Structure	-0.2544	0.0467
Related Diversification	0.1419	0.0899
Unrelated Diversification	-0.0600	-0.0765
Internationalization	-0.7090	-0.0220
Ownership Structure	-0.1862	-0.0161
R^2	0.0549	
Adjusted R^2	0.0245	

Note: $p < .05$ *
$p < .01$ **

TABLE 3-9
REGRESSION WEIGHTS, STANDARDIZED COEFFICIENTS AND SIGNIFICANCE OF THE THIRD MODEL TESTING HYPOTHESES 11 THROUGH 15

ROE - DEVIATION FROM INDUSTRY AVERAGE

Variables	Regression Weight	Standardized Beta
Intercept	-5.3804	0.0000
Munificence	0.6388	0.0354
Dynamism	-1.1917	-0.0588
Complexity	1.4941	0.0636
Org. Structure	0.8423	0.0453
Related Diversification	-0.2662	-0.0504
Unrelated Diversification	0.2482	0.0893
Internationalization	5.4256	0.0491
Ownership Structure	0.5322	0.0137
R^2	0.0272	
Adjusted R^2	-0.0067	

Note: $p < .05$ *
$p < .01$ **

independent variables in the three models (one for each dependent variable), as well as the R-squared, adjusted R-squared and significance levels of each model.

Contrary to expectation (and hypothesis), there are no hypothesized effects in the regressions on organizational performance. None of the hypothesized variables entered, organizational structure, product diversification, market internationalization, ownership structure, or industry control, test significant. In addition, the regressions themselves are not significant. The highest R-squared for any model is only 0.0620, with the adjusted R-squared at 0.0271. Thus, almost none of the variance in organizational performance is explained by these regressions.

In the industry adjusted ROI and ROA equations, munificence positively predicts organizational performance. This result suggests firms which operate in munificent environments perform better than firms in less munificent environments. The environment therefore seems to affect organizational performance.

Covariance Structural Model

Following the regression analysis described above, a covariance structural model was developed using LISREL 8 (Joreskog & Sorbom, 1993). This modeling approach used as its base model the significant regression weights from the original data analysis. The three industry control variables, munificence, dynamism and complexity, were modeled as exogenous to the structural equations. The remaining variables, size, ownership structure, related and unrelated product diversification, internationalization, organizational structure and performance, were modeled as endogenous to the structural

equations. The resulting structural model was similar in design to a model described by Keats & Hitt (1989).

Since LISREL 8 (Joreskog & Sorbom, 1993) is capable of modeling latent variable constructs directly, it was not necessary to estimate factor scores for several of the variables. Therefore, the original raw data was used to estimate the LISREL model. The three endogenous variables, munificence, dynamism and complexity were estimated directly from the raw data according to the pattern suggested by Dess & Beard (1984). Size was estimated from the natural logarithm of firm assets, the natural logarithm of firm sales and the natural logarithm of number of firm employees. All other variables, ownership structure, related diversification, unrelated diversification, internationalization organizational structure and the three performance indices, remained the same.

The covariance structure model was estimated using maximum likelihood estimation (n=219). Following the fitting of a model based on the regression results, a specification search was conducted (Kaplan, 1990). This search resulted in the model depicted in Figure Two. The model, with 157 degrees of freedom, had a Chi-Square of 889.81 (p=0.00). While the p-value is significant, the model demonstrated adequate goodness of fit. The fit indices were: Goodness of Fit (GFI) = 0.75, Adjusted Goodness of Fit (AGFI) = 0.67, Bentler-Bonnet index (NFI) = 0.79, Tucker-Lewis index (NNFI) = 0.78. These indices indicate good fit for the model.

The model in Figure Two confirms and duplicates the results of the original regression analysis, with two additional results. One additional path is from unrelated diversification negatively affecting internationalization in the model (Standardized Weight = -0.2323, $p < .05$). This result suggests firms which are diversified into unrelated lines

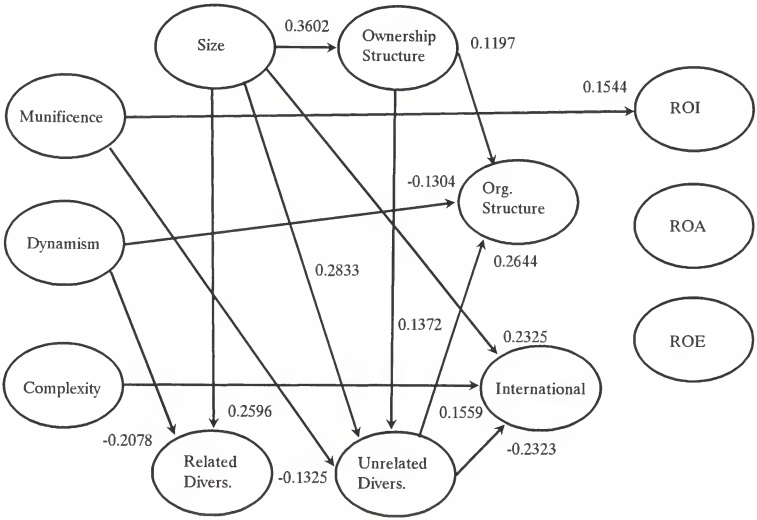

Figure Two: LISREL Causal Model

of business will be less likely to internationalize their operations than firms which diversify closer to their core businesses. The second result is the path from munificence to ROA, predicted by the regression analysis, is not significant.

To summarize, the LISREL covariance structural model generally duplicates the results of the original regression analysis, with one exception. An additional path was found during a specification search. Unrelated diversification negatively affected internationalization.

Summary

There were 17 hypotheses advanced in Chapter Two of this study. In this chapter, the results of the tests were presented. Seven of the 17 hypotheses were supported, nine were not supported, and one tested significant in a direction opposite to its hypothesis. A significant finding from this study is the positive relationship between equity dispersion and organizational structure. Owner-controlled firms were shown to be more likely U-Form and management-controlled firms were more likely to be M-Form. This result is further discussed in Chapter 4. Table 3-8 presents a summary of the hypothesis test findings for Chapter 3.

TABLE 3-8
SUMMARY OF HYPOTHESIS TEST FINDINGS

Hypothesis #	Hypothesized Relationship	Finding
1	Larger size disperses equity	Supported
2	Larger orgs. pos. rel. div.	Supported
3	Larger orgs. pos. unrel. div.	Supported
4	Larger orgs. pos. internat'l.	Supported
5	Equity dispersion neg. rel. div.	n.s.
6	Equity dispersion pos. unrel. div.	Supported
7	Equity dispersion neg. internat'l.	n.s.
8	Larger size pos. M-Form	Supported
9a	Rel. Div. pos. for M-Form	n.s.
9b	Unrel. Div. pos. for M-Form	Supported
9c	Internat'l. pos. for M-Form	n.s.
10	Equity dispersion neg. M-Form	(Positive) *
11	Rel. Div. pos. performance	n.s.
12	Unrel. Div. neg. performance	n.s.
13	Internat'l. pos. performance	n.s.
14	Equity disp. neg. performance	n.s.
15	M-Form positive performance	n.s.

Note:
n.s. = not significant

CHAPTER 4
DISCUSSION AND IMPLICATIONS

This study has examined the implications of agency theory and managerial capitalism for the strategy-structure relationship. Many of the study results are consistent with previous research. However, regarding the ownership structure-organizational structure relationship, the results are opposite to the direction hypothesized. The effect of equity dispersion is positive, that is management-controlled firms tend toward a multidivisional (M-Form) structure while owner-controlled firms tend to be functional (U-Form). This result holds even after controlling for the size of the firm.

The ownership structure also influences the firm's strategy. Management-controlled firms were much more likely to engage in unrelated diversification than owner-controlled firms. Unrelated diversification and internationalization also both positively affected firm movement to the multidivisional organization structure. This result shows the ownership structure influences organizational structure directly and through the firm's corporate strategy.

This study does not find owner-controlled firms perform better than management-controlled firms. This result is inconsistent with the literature on agency theory and managerial capitalism (Tosi & Gomez-Mejia, 1994). Additionally, no effects of organizational structure on performance were found. M-Form firms did not perform better than U-Form firms. The M-Form hypothesis of Williamson (1975) is not supported

in this study. This result suggests organizational structure may not matter with regard to performance in the manner hypothesized. It may be ownership that matters, and how ownership manages the firm.

Discussion

Ownership Structure

The findings of this study regarding the separation of ownership and control are consistent with previous research (Berle & Means, 1932; Larner, 1960). Size was shown to be a significant predictor of the separation of ownership and control. Owner-controlled firms tend to be smaller than management-controlled firms. The larger the corporation, the greater the likelihood that the firm will be management-controlled.

This result substantiates the work of Berle-Means (1932) regarding the separation of ownership and control. Eventually, the firm may become so large that it is beyond the means of any one individual to control the equity of the corporation (Larner, 1966). Furthermore, owner-controlled firms are smaller than their management-controlled counterparts.

There are also effects of the ownership structure on the strategy and organizational structure of the firm. Perhaps owner-controlled firms resist efforts to diversify into unrelated lines of business. At the same time, owner-controlled firms are smaller in size and tend to favor the U-form organizational structure.

Strategy

Related diversification. Size was shown to be a significant predictor of related diversification. Larger firms, exhausting the market potential of their primary industry, tend to expand into related market niches. This result is consistent with previous research that has found size positively associated with firm diversification (Jacquemin & Berry, 1979).

The ownership structure, however, is not a predictor of related diversification. An agency hypothesis regarding the role of related diversification is owner-controlled firms would favor it, since previous research has shown it consistently provides higher returns to shareholders than unrelated diversification (Rumelt, 1982; Lubatkin & Rogers, 1989) Furthermore, the direction of the relationship between ownership structure and related diversification is positive, although this result is not significant. The lack of a significant result suggests that management-controlled and owner-controlled firms may not significantly differ in their related diversification strategies. However, management-controlled and owner-controlled firms do appear to differ in their approaches to unrelated diversification.

Environmental dynamism is a significant predictor of related diversification. Instability in the firm's primary market environment appears to limit the willingness of the firm to explore closely related market niches. Higher levels of dynamism negatively affect the levels of related diversification of the firm.

Unrelated diversification. Organizational size is also a significant predictor of unrelated diversification. Like related diversification, firms seek out diversification

opportunities once they have exhausted the growth opportunities available to them in their primary market niche. Increased organizational size pushes the organization outside their original target market. This result is consistent with previous research (Jacquemin & Berry, 1979).

The ownership structure of the firm is also a significant predictor of unrelated diversification. This result suggests the mechanism by which management-controlled firms pursue unconstrained growth. Management-controlled firms seek unrelated diversification opportunities in order to maximize the size of the firm, and as a result management's opportunities for compensation and perquisite consumption. Managers seek unconstrained growth, according to the managerialists, in order to reduce their employment risk and to maximize their opportunities for perquisite consumption (Marris, 1964). Owner-controlled firms, on the other hand, resist moves into unrelated industries. Thus, the interests of owner-controlled and management-controlled firms diverge regarding diversification direction. Owner-controlled firms prefer to remain focused on their primary industries while management-controlled firms pursue growth through unrelated diversification.

Management-controlled firms pursue this growth despite the potentially adverse performance consequences of unrelated diversification. While this study does not reveal performance effects for diversification, other researchers have pointed to the adverse performance impact of unrelated diversification (Bettis, 1981; Lubatkin & Rogers, 1989). Management-controlled firms pursue unrelated diversification in order to maximize growth and the size of the firm (Marris, 1964). Without the presence of an external owner, monitoring and incentive alignment between owners and managers is adversely

affected (Tosi & Gomez-Mejia, 1989). The net result is a control loss, and the movement of the firm's strategic direction away from the best interests of owners.

The other impact of unrelated diversification is through internationalization. While internationalization is potentially beneficial to the long-term success of the firm (Geringer, Beamish & daCosta, 1989), unrelated diversification appears to limit the internationalization of the firm's markets. One possibility to account for this result is firms, having exhausted their resources on domestic product diversification, are unable to expand into the global arena. The adverse performance consequences of unrelated diversification may help exacerbate this effect.

Environmental munificence is also a significant predictor of unrelated diversification. Munificence is negatively related to unrelated diversification. Firms operating their primary business in munificent environments are less likely to pursue unrelated diversification. One possibility for this effect is lack of demand for growth opportunities. Growth in a firm's primary line of business business may constrain demand for new markets and other growth opportunities not related to the firm's primary industry. Munificent environments may present sufficient challenge to the firm for it to remain focused on the primary line of business.

Internationalization. Size has also been shown to be a predictor of the internationalization of firm operations. Larger firms pursue this form of geographic diversification presumably due to the lack or saturation of growth opportunities domestically. A natural extension of large firms would appear to be the internationalization of its operations.

Unrelated diversification is a negative predictor of the internationalization of firm operations. It is perhaps by focusing too much on unrelated product diversification that market expansion is hindered.

Environmental complexity is positively related to the internationalization of firm operations. This result suggests the more geographically dispersed the operations of the primary industry in which the firm operates, the more likely the firm will internationalize their operations.

Organizational Structure

Of the five hypotheses tested regarding effects on organizational structure, two tested significant: unrelated diversification and ownership structure. The size effect is predicted by previous research regarding antecedents of organizational structure (Pugh, et. al., 1969; Child, 1973). In this study size effects on organizational structure were not indicated.

Of the three strategic diversification effects tested for (related, unrelated and international), all three regression coefficients were positive. This outcome suggests all forms of diversification, whether product or market, have a positive effect regarding the movement toward a multidivisional organizational structure. As the firm diversifies, the likelihood of the adoption of a multidivisional structure increases.

This result is significant in the present study for unrelated diversification. More than any other form of strategic diversification, unrelated diversification would appear to put the most strain on functional organizational structures. This result is consistent

with the results of Chandler (1962) and Rumelt (1974), who detail the administrative strain placed on functionally organized firms by increasingly diversified operations.

A surprising result of this study is the effect of the ownership structure on the organizational structure of the firm. This effect is positive and significant. Management-controlled firms prefer to adopt a multidivisional structure. Owner-controlled firms prefer a functional structure. This effect remains even after controlling for size (which is also significant in this study). If, as Williamson (1975) argues, the M-Form is inherently superior, why do owner-controlled firms seek out or retain their U-form organizational structures?

Equally puzzling is the lack of organizational structure effects on performance. This result, combined with ownership structure effects on performance, suggests an interesting result: perhaps the M-Form hypothesis (Williamson, 1975) should be reconsidered. This study finds that owner-controlled firms, which by agency theory are operated in a more efficient and effective manner than management-controlled firms, prefer functional (or U-form) organizational structures. This result holds even after controlling for organizational size.

This outcome suggests that the M-Form or multidivisional structure may not be inherently superior to the U-form or functional structure. Organizational structure does not appear to matter with regard to achieving superior returns to shareholders. Furthermore, owner-controlled firms, smaller and less diversified than management-controlled firms, may resist efforts to diversify their operations and divisionalize their organizational structures. Owner-controlled firms are smaller, less diversified and more likely to retain their functional organizational structure. Management-controlled firms are

larger, more diversified and more likely to be multidivisional than owner-controlled firms.

One potential explanation for this may be that monitoring and incentive alignment in U-Form firms is less difficult to achieve than would be expected by the M-Form hypothesis. Owners of the firm may prefer the U-form in order to increase their ability to monitor the actions of their agents within a functional organizational structure. M-Form firm divisions are monitored by the central office, and the monitoring is based on financial returns to each product division, as though each division were a separate firm.

In contrast, the U-Form firm may afford top management the ability to monitor operational and business-level decision making, as well as purely financial criteria. The difference that the owner makes may then be at the business-level of strategic decision making.

Another potential explanation for the ownership structure-organizational structure relationship is that owners may restrain the size and growth of the firm. The transactions costs advantages postulated to the M-Form (Williamson, 1975) may only come after the lengthy evolution of the firm into a diverse, conglomerate organization. Smaller, less diverse firms may have no distinct advantages by adopting the M-Form structure if their size and diversification posture do not merit such a structural realignment. Owner-controlled firms, in fact, appear to inhibit the movement of the firm to such structures.

A way the ownership structure-organizational structure relationship could be further clarified would be through longitudinal research. Over the life of the firm, the hypothesized effect of owners and ownership control for the firm would be to reduce the evolution of the firm to a M-Form. Owners seem to prefer simpler organizational

structures, such as the U-Form. The question remains why owners prefer this organizational structure and what benefits accrue to the firm as a result.

The net effect of owners, then, is to inhibit market and product diversification, restrain size, and constrain the structural realignment of firms toward the M-Form. Owners seem to provide a disciplinary effect on the firm, channeling organizational energies into a focused emphasis on the firm's business. While management-controlled firms seek out unconstrained growth for their own ends (Marris, 1964), owner-controlled firms inhibit unconstrained growth and maintain the focus of the firm on their essential core businesses.

If, as Williamson (1975) argues, the net advantage of the M-form is in the form of reduced transaction costs due to the presence of an internal capital market, this effect is not noted in this study. The results of this study suggest there may not be any transactions cost advantage of the M-Form relative to the U-Form organization. This study finds no significant performance advantages of the M-Form relative to the U-Form.

Environmental dynamism was found to be negatively related to organizational structure. Firms experiencing instability in their primary industrial environment show a tendency to decrease multidivisional activities, preferring to remain functional in structure. This may be due to the increased demands placed upon the firm from their primary environmental domain.

Performance

No performance effects are found for ownership structure, strategy or organizational structure in this study. Agency theory and managerial capitalism research has documented that owner-controlled firms' performance is higher than manager-controlled firms (Boudreaux, 1973; McEachern, 1975). This study is not consistent with previous managerialist research on this point.

Likewise, no effects are found for strategy or organizational structure. Related diversification has been shown to be financially superior to unrelated diversification (Jacquemin & Berry, 1979; Bettis, 1981; Rumelt, 1982; Palepu, 1985; Lubatkin & Rogers, 1989). The degree of internationalization has been demonstrated to be positively related to firm performance (Kim, Hwang & Burgers, 1989; Geringer, Beamish & daCosta, 1989). Finally, Williamson (1971) argues the M-form organizational structure is superior to the U-form organizational structure. This result has been substantiated by other researchers (Steer & Cable, 1978; Armour & Teece, 1978; Teece, 1981). However, this study does not find these effects.

In two of the three performance regressions, munifience is found to be a positive significant predictor of organizational performance. This result suggests firms which operate in munificent environments perform better than companies that do not.

One possible explanation for the lack of effects for organizational structure is the M-Form hypothesis (Williamson, 1971) could be flawed. Given that this study finds no significant difference between functional and multidivisional organizational structures on performance, the outcome of this study suggests there may be more than one way to

optimally organize a firm. Functional organizational structures demonstrate no appreciable difference in performance in this sample from the product-division multidivisionals. Additionally, ownership and the ownership structure of the firm shows a significant effect on the organizational structure. These two pieces of evidence run counter to the arguments of the M-form hypothesis.

Environmental Effects

This study has also documented the effects of the environment on the firm's strategy and structure. Munificence, the ability of the firm's environment to sustain growth, has been negatively related to unrelated diversification. Firms that operate in munificent environments have less need to seek business unrelated to the firm's primary business. Munificence is also positively related to organizational performance. Munificent environments seem to reward firms, regardless of internal corporate strategy or organizational structure. Dynamism negatively affects related diversification. Instability in the firm's task environment curtails opportunities for the firm to seek possible synergistic business in products related to the firm's core business. Dynamism appears to have adverse effects on the firm's diversification strategy (Keats &Hitt, 1989).

Complexity was shown to be positively related to the firm's market internationalization activities. Dispersion, or the decentralization of activity in the firm's task environment increases the likelihood that the firm will seek international market opportunities, possibly as an extension of the firm's regular ongoing lines of business.

Implications

The findings of this study have several implications for scholars and practitioners. The details of these implications, both practical and theoretical, are discussed below.

Implications for Organizations

The results of this study clearly indicate owners have an impact on the strategy and structure of the firm. Owners restrict the diversification of the firm, particularly unrelated product diversification. Other researchers have demonstrated that related diversification is superior to unrelated diversification (Bettis, 1981; Lubatkin & Rogers, 1989). Owners appear to exercise discipline on firm diversification efforts, presumably in a manner that enhances firm performance. Through choices regarding the firm's strategy, and directly through organizational structure, ownership affects relevant organizational outcomes.

This seems to occur in two ways. First, by limiting the unrelated diversification efforts of the firm, owners appear to restrict the movement of firms toward multidivisional organizational structures. Increasing levels of unrelated diversification positively affects the movement of the firm toward a multidivisional arrangement. Second, owners appear to influence organizational structure directly, by preferring to retain the functional or U-Form organizational structure. This direct influence on organizational structure was in the opposite direction hypothesized. It would also suggest that M-form firms do not have transactions cost advantages relative to the U-Form.

One factor that potentially confounds the ownership structure-organizational structure result is firm size. Size, after all, plays such a large role in the movement of the firm from a basic functional structure to a more divisionalized product division structure. Organizational size also affects the diversification of the firm, both product and market. However, even after controlling for size, the ownership structure - organizational structure relationship remains.

This result indicates owners prefer the simpler, functional structural arrangement. While Williamson (1975) argues the M-form, or product division, structure is superior to the functional arrangement, this study finds no support for this hypothesis. Furthermore, owners in this study prefer this structural configuration. This result calls into question the relative superiority of the M-Form arrangement. A possibility suggested by this study is there may be more than one best organizational structure. Stated differently, organizational structure may affect organizational performance in a manner different than suggested by Williamson (1975).

On the basis of this study it does not appear that organizational structure has any impact on performance outcomes. Organizational structure then becomes a question of fit between the firm's strategic posture and the internal structures which best accommodate that posture. There does not appear to be one best way to structure an organization. The real difference could be in the presence of an external owner, who potentially provides the monitoring and incentive alignment necessary to achieve superior returns.

Implications for the Strategy/Structure School

This study supports the Chandler (1962) strategy/structure thesis: structure followed strategy in this research sample. Specifically, unrelated diversification predicts the movement of the firm from a functional to a multidivisional organizational structure. Size was also found to be a strong predictor, and this result is also consistent with previous research (Child, 1973). This study strongly supports the work of Chandler (1962) and Rumelt (1974).

However, evidence for the M-form hypothesis is not supported. First, owner-controlled firms prefer the U-Form or functional structure. Assuming the implications of agency theory and managerial capitalism apply in the realm of strategy/structure research, owner-controlled firms should have favored the M-form organizational arrangement. This would provide support for the M-form hypothesis of Williamson (1975).

That is not the result of this study. Owner-controlled firms instead favor the U-Form arrangement. Furthermore, this study finds no distinct performance advantage to the product-division structure. Further research on the structure-performance relationship is necessary to clarify this point. This study suggests there are no performance advantages to the M-Form organizational structure.

Last, this study has illuminated the impact of ownership and the ownership structure on the strategy/organizational structure relationship. Ownership is demonstrated in this study to impact not only the strategies of the firm, but also the organizational structure directly. This introduces agency ideas into strategy/structure research.

Implications for Agency Theory and Managerial Capitalism

This study has extended the realm of agency theory and managerial capitalism into strategy/structure research. The results of this study clearly indicate the effects of the ownership structure on the strategy and organizational structure of the firm. The increasing size of the firm drives the dispersion of equity ownership. After a certain point, it is beyond the capacity of all but a few investors to retain a significant share of the firm's equity. The study also indicates the direction of the effect: through strategy (reducing unrelated diversification) and structure (moving of keeping the organization functionally organized). These effects remain even after controlling for firm size.

Owner-controlled firms were not demonstrated to achieve superior returns. Previous research demonstrates the performance benefits that accrue to owner-controlled firms (e.g., McEachern, 1975; Tosi & Gomez-Mejia, 1994). This study fails to find these effects. Additionally, no benefits accrue to the U-Form organizational structure, which was preferred by owner-controlled firms. This raises the question of the benefits hypothesized to accrue to owner-controlled firms. It is possibly due to internal processes that were not part of this study. This remains a question for future research. Further research may be able to document these performance effects and trace their origin.

Directions for Future Research

The first and most pressing need for further research regards the relationship between organizational structure and organizational performance. The results from this

study, by finding no effects, leaves open the debate regarding the performance implications of organizational structure. This study also fails to find advantages to related diversification versus unrelated diversification, as well as the outcome of higher performance for owner-controlled firms. Further research is needed to examine the performance implications this study fails to find.

Another research method that would shed light on several points in this study is longitudinal research. A longitudinal study of the effects of ownership and ownership structure on firm strategy and structure would help show the mechanisms by which the effects noted here evolved. Issues such as firm age, the stage of corporate growth that necessititates the movement toward a M-Form and the lasting effects of ownership on firm strategy and structure during the growth of such firms could benefit from this approach. It would help to document the increased burden faced by the U-Form when faced with the pains of growth and increased product and market diversity. It would also document the disciplining effect documented here of owners, and their effect on restraining these evolutionary forces.

A potential linkage that longtudinal research may uncover is the reciprocal role organizational size seems to play in firm outcomes. While shareholders seek to maximize the return on their investment, management appears to be maximizing the size of the firm, either through unrelated diversification or organizational structure. These objectives imply a reciprocal causality to organizational size through time. Managers, seeking to maximize their own rewards and perquisites, grow the firm beyond a size which maximizes returns to shareholders. A longitudinal study may empirically demonstrate the effects of management-control on strategy and organizational structure through size.

The characteristics of the study sample also could bear scrutiny. The Fortune 500 is large, industrially diverse and relatively heterogenous. Further research on samples that are smaller would probably benefit in that the skewness of the sample toward large M-Form structures would be moderated. A matter of great concern in the present study was the relative paucity of smaller, U-Form structures relative to the M-form. This is probably to be expected in the Fortune 500, since they are the largest industrial manufacturing concerns in the U.S. A more homogeneous sample of firms could also benefit researchers in that industry effects, both on dependent and independent variables, would be less of an empirical concern. This of course would come at the expense of generalizability, which is not of great consequence in this sample.

Last, this study has been conducted in a manner consistent with the original study of Rumelt (1974). Additional research comparing this study with the original Rumelt (1974) sample may prove relevant regarding the evolution of organizational structure in the Fortune 500. Other results from both studies may shed light on the current state of American enterprise and the changes that have occurred from the time of Chandler (1962) to Rumelt (1974) and the present day. This comparison may also provide insights regarding the future direction of our largest American manufacturing concerns.

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APPENDIX 1
1987 FORTUNE 500 RESEARCH SAMPLE

THIS APPENDIX LISTS THE RESEARCH SAMPLE OF 300 COMPANIES FROM THE 1987 FORTUNE 500.

ABBOTT LABORATORIES
ADVANCED MICRO DEVICES
AIR PRODUCTS & CHEMICALS
ALBERTO-CULVER
ALLIED-SIGNAL
ALUMINUM CO. OF AMERICA
AMAX INC.
AMDAHL
AMERADA HESS
AMERICAN BRANDS
AMERICAN CYANAMID
AMERICAN GREETINGS
AMERICAN HOME PRODUCTS
AMERICAN STANDARD
AMETEK
AMOCO
AMP INC.
ANHEUSER-BUSCH
APPLE COMPUTER
ARCHER DANIELS MIDLAND
ARMCO
ARMSTRONG WORLD INDUSTRIES
ARVIN INDUSTRIES
ASARCO
ASHLAND OIL
ATLANTIC RICHFIELD
AVON PRODUCTS
BAKER HUGHES
BALL
BARD
BAUSCH & LOMB

BECTON, DICKINSON & COMPANY
BEMIS
BETHLEHEM STEEL
BLACK & DECKER
BOEING
BOISE CASCADE
BORDEN, INC.
BOWATER
BRIGGS & STRATTON
BRISTOL-MYERS
BROWN-FORMAN
BRUNSWICK CORP.
CABOT
CAMPBELL SOUP
CARLISLE
CATERPILLAR
CHAMPION INTERNATIONAL
CHESAPEAKE
CHEVRON
CHRYSLER
CINCINNATI MILACRON
CLARK EQUIPMENT
CLOROX
COASTAL
COCA-COLA
COCA-COLA ENTERPRISES
COLGATE-PALMOLIVE
COMMERCE CLEARING HOUSE
COMPAQ COMPUTER
CONAGRA
CONSOLIDATED PAPERS
COOPER INDUSTRIES
COOPER TIRE & RUBBER
COORS (ADOLPH)
CORNING GLASS
CPC INTERNATIONAL
CRANE
CRAY RESEARCH
CROWN CORK & SEAL
CUMMINS ENGINE
CYPRUS MINERALS
DANA CORP.
DANAHER
DATA GENERAL

DEAN FOODS
DEERE & CO.
DEXTER CORPORATION
DIGITAL EQUIPMENT
DONNELLEY (R.R.) AND SONS
DOVER
DOW CHEMICAL
DOW JONES
DRESSER INDUSTRIES
DU PONT (E.I.) DE NEMOURS
DWG
EAGLE-PICHER
EASTMAN KODAK
EATON CORP.
ECHLIN
ECOLAB
EG&G
EMERSON ELECTRIC
ENGELHARD
ETHYL
EXXON
E-SYSTEMS
FEDERAL PAPER BOARD
FEDERAL-MOGUL
FERRO
FIGGIE INTERNATIONAL
FLEETWOOD ENTERPRISES
FLOWERS INDUSTRIES
FMC
FORD MOTOR
FORT HOWARD
FREEPORT-MCMORAN
FULLER (H.B.)
GAF
GANNETT
GENERAL DYNAMICS
GENERAL ELECTRIC
GENERAL INSTRUMENT
GENERAL MILLS
GENERAL MOTORS
GENERAL SIGNAL
GEORGIA-PACIFIC
GERBER PRODUCTS
GILLETTE

GOODRICH (B.F.)
GOODYEAR
GRACE (W.R.)
GREAT LAKES CHEMICAL
GRUMMAN
HANNA (M.A.)
HARNISCHFEGER INDUSTRIES
HARRIS
HARSCO CORP.
HARTMARX
HASBRO
HEINZ (H.J.)
HERCULES
HERSHEY FOODS
HEWLETT-PACKARD
HOMESTAKE MINING
HON INDUSTRIES
HONEYWELL
HORMEL (GEO. A.)
HUBBELL INC.
ILLINOIS TOOL WORKS
INGERSOLL RAND
INLAND STEEL INDUSTRIES
INSILCO
INTEL
INTERCO
INTERGRAPH
INTERLAKE
INTERNATIONAL BUSINESS MACHINES
INTERNATIONAL MULTIFOODS
INTERNATIONAL PAPER
INTERSTATE BAKERIES
INT'L FLAVORS & FRAGRANCES
JAMES RIVER CORP.
JEFFERSON SMURFIT
JOHNSON CONTROLS
JOHNSON & JOHNSON
JOSTENS
KAMAN
KELLOGG
KELLWOOD
KERR-MCGEE
KIMBERLY-CLARK
KNIGHT-RIDDER

LAFARGE
LEGGETT & PLATT
LILLY
LITTON INDUSTRIES
LOCKHEED
LORAL
LOUISIANA LAND & EXPLORATION
LOUISIANA-PACIFIC
LTV
LUBRIZOL
LUKENS
MAPCO
MARTIN MARIETTA
MASCO
MASCO INDUSTRIES
MATTEL
MAXUS ENERGY
MAYTAG
McCORMICK
McDONNELL DOUGLAS
MEAD CORP.
MEDTRONIC
MERCK & CO.
MILLER (HERMAN)
MILLIPORE
MINNESOTA MINING AND MFG.
MOBIL
MONSANTO
MOTOROLA
MURPHY OIL
NALCO CHEMICAL
NATIONAL SEMICONDUCTOR
NATIONAL SERVICE INDUSTRIES
NAVISTAR INTERNATIONAL
NEW YORK TIMES
NEWELL
NEWMONT MINING
NL INDUSTRIES
NORTEK
NORTHROP
NUCOR
OCCIDENTAL PETROLEUM
OLIN CORP.
OUTBOARD MARINE

OWENS-CORNING FIBERGLAS
OWENS-ILLINOIS
PACCAR INC.
PARKER HANNIFIN
PENNZOIL
PENTAIR
PEPSICO
PERKIN-ELMER
PFIZER
PHELPS DODGE
PHILIP MORRIS
PHILLIPS PETROLEUM
PITNEY BOWES
PITTWAY
POLAROID
POTLATCH
PPG INDUSTRIES
PROCTER & GAMBLE
QUAKER OATS
QUAKER STATE
RALSTON PURINA
RAYCHEM
RAYTHEON
REYNOLDS METALS
REYNOLDS & REYNOLDS
ROCKWELL INTERNATIONAL
ROHM AND HAAS
RUBBERMAID
RUSSELL
SARA LEE
SCHERING-PLOUGH
SCHULMAN
SCI SYSTEMS
SCOTT PAPER
SEAGATE TECHNOLOGY
SEQUA
SHERWIN-WILLIAMS
SMITH (A.O.)
SNAP-ON TOOLS
SONOCO PRODUCTS
SPRINGS INDUSTRIES
STANDARD PRODUCTS
STANDARD REGISTER
STANLEY WORKS

STONE CONTAINER
STORAGE TECHNOLOGY
SUN
SUNDSTRAND CORP.
TAMBRANDS
TANDEM COMPUTERS
TEKTRONIX
TELEDYNE
TEMPLE-INLAND
TENNECO
TEXACO
TEXAS INDUSTRIES
TEXAS INSTRUMENTS
TEXTRON
TIMES MIRROR
TIMKEN
TORO
TOSCO
TRIBUNE CO.
TRINITY INDUSTRIES
TRINOVA
TRW INC.
TYSON FOODS
UNION CAMP
UNION CARBIDE
UNISYS
UNITED TECHNOLOGIES
UNOCAL
UPJOHN
USG
UST
USX
VARIAN ASSOCIATES
VULCAN MATERIALS
WANG LABORATORIES
WARNER-LAMBERT
WASHINGTON POST
WEST POINT-PEPPERELL
WESTERN DIGITAL
WESTINGHOUSE
WESTVACO
WEYERHAEUSER
WHIRLPOOL
WILLAMETTE INDUSTRIES

WITCO
WORTHINGTON INDUSTRIES
WRIGLEY (WM. JR.)
XEROX CORP.
ZENITH ELECTRONICS

APPENDIX 2
STRUCTURE TYPOLOGY RATER CORRELATIONS AND RELIABILITY

The following is the correlational analysis and reliability estimate for the Structure typology in the 1987 Fortune 500 study.

	Rater 1	Rater 2	Rater 3
Rater 1	1.0000		
Rater 2	0.5266	1.0000	
Rater 3	0.4732	0.3223	1.0000

Average Correlation (all 3 raters): 0.4407

Spearman-Brown Reliability Estimate: 0.7027

Percentage of Agreement (2-Way): 0.80

Cohen's Kappa: 0.4116

APPENDIX 3
FACTOR ANALYSIS USED TO CREATE SIZE COMPOSITE VARIABLE

Size Composite Variable

	Factor 1	Factor 2	Factor 3
Eigenvalue	2.25	0.65	0.11
Proportion of Variance	0.75	0.22	0.03
Cumulative Proportion	0.75	0.97	1.00
Assets Factor Weight	0.55	-.68	0.49
Sales Factor Weight	0.64	-.03	-.76
# of Employees Factor Weight	0.53	0.73	0.42

APPENDIX 4
MEASUREMENT OF ENVIRONMENTAL DIMENSIONS

No.	Var. Name	Measurement of Var.	Source of Data
V1	Salegrow	Growth in Value of Shipments; regression slope coefficient divided by mean value (1978-1987).	U.S. Bureau of the Census (1987). Census of Manufactures, Volume 1.
V2	Prcmgrow	Value added by manufacture minus total wages; same measurement method as V1.	Same as V1.
V3	Emplgrow	Growth in total employment; same measurement method as V1.	Same as V1.
V4	Vaddgrow	Growth in value added by manufacture; same measurement method as V1.	Same as V1.
V11	Saleinst	Instability in value of shipments; standard error of the regression slope coefficient divided by mean value.	Same as V1.
V12	Prcminst	Value added by manufacture minus total wages; same measurement method as V11.	Same as V1.
V15	Vaddinst	Instability in value added by manufacture; same measurement method as V11.	Same as V1.

No.	Var. Name	Measurement of Var.	Source of Data
V18	Emplgeog	$C_i = \Sigma TE_{ij2} / (\Sigma TE_{ij})^2$ C= concentration index of industry total employment TE= total industry employment i = 1, 2, ...,n j = 1, 2, ...,m	U.S. Bureau of the Census (1977), Census of Manufactures Vol. 2, Table 2: General Statistics by Geographical Area 1977.
V19	Estbgeog	$C_i = \Sigma IE_{ij}^2 / (\Sigma IE_{ij})^2$ C= concentration index of industry establishments IE= total # of industry establishments Same measurement method as V18.	Same as V18.

APPENDIX 5
ENVIRONMENTAL DIMENSIONS - FACTOR LOADINGS AND SCORES

The following is a matrix of factor loadings for the observed variables on their respective environmental dimensions.

	Munificence	Dynamism	Complexity
V1	0.82	0.00	0.00
V2	0.96	0.00	0.00
V3	0.84	0.00	0.00
V4	0.98	0.00	0.00
V11	0.00	0.90	0.00
V12	0.00	0.96	0.00
V15	0.00	0.96	0.00
V18	0.00	0.00	0.95
V19	0.00	0.00	0.92

From the factor loadings above, factor scores were calculated for the three environmental dimensions according to the following matrix formula:

$$Z = (\Lambda'\Lambda)^{-1}\Lambda'X$$

where

Z = industry factor scores

Λ = factor loading matrix

x = matrix of standardized observed environmental variables

APPENDIX 6
CORRELATION MATRIX OF ALL VARIABLES

	Munific-ence	Dynamism	Complexity	Total Assets	Total Sales	# of Empl.	Size
Mean	0.2746	-0.0354	-0.0612	3064.96	3779.34	36.25	-0.07
Standard Deviation	1.0073	0.9671	0.8456	3958.99	7886.96	68.81	1.32
Munificence	1.00						
Dynamism	-0.45	1.00					
Complexity	0.06	0.28	1.00				
Total Assets	-0.04	-0.02	0.00	1.00			
Total Sales	0.01	0.05	0.02	0.54	1.00		
# of Employees	0.06	0.03	0.06	0.53	0.87	1.00	
Size Factor	0.02	0.03	0.03	0.71	0.95	0.95	1.00
Ownership Structure	0.08	-0.19	-0.03	0.29	0.12	0.13	0.18
Related Diversification	0.01	-0.15	-0.16	0.24	0.14	0.08	0.15

	Munific-ence	Dynamism	Complexity	Total Assets	Total Sales	# of Empl.	Size	Ownership Structure
Mean	0.2746	-0.0354	-0.0612	3064.96	3779.34	36.25	-0.07	0.49
Standard Deviation	1.0073	0.9671	0.8456	3958.99	7886.96	68.81	1.32	0.50
Unrelated Diversification	-0.09	0.00	0.01	0.34	0.23	0.24	0.29	0.23
Internation-alization	0.08	-0.09	0.15	0.12	0.05	0.08	0.09	-0.02
Organizational Structure	-0.05	-0.16	-0.04	0.19	0.13	0.17	0.18	0.21
ROI (Industry Adjusted)	0.15	-0.06	-0.07	-0.02	0.02	-0.01	0.00	-0.07
ROA (Industry Adjusted)	0.05	-0.03	-0.10	-0.08	-0.06	-0.10	-0.09	-0.08
ROE (Industry Adjusted)	0.00	-0.04	0.06	0.00	-0.04	-0.04	-0.04	0.02

	Owner-ship	Related Div.	Unrelated Div.	Inter-nat'l	Org. Structure	ROI	ROA	ROE
Mean	0.48	4.30	8.59	0.22	3.48	2.59	1.55	0.68
Standard Deviation	0.50	3.61	7.12	0.17	1.04	8.84	5.35	19.25
Ownership Structure	1.00							
Related Diversfication	0.09	1.00						
Unrelated Diversification	0.23	0.06	1.00					
Internation-alization	-0.02	-0.02	-0.16	1.00				
Organizational Structure	0.21	0.10	0.28	0.06	1.00			
ROI (Industry Adjusted)	-0.06	0.06	0.02	-0.01	-0.06	1.00		
ROA (Industry Adjusted)	-0.08	0.11	-0.06	-0.05	-0.12	0.82	1.00	
ROE (Industry Adjusted)	0.02	-0.04	0.08	0.02	0.07	0.42	0.41	1.00

Sample size (n=219) eliminates all missing data from the correlation matrix.

BIOGRAPHICAL SKETCH

Randy Harris was born in 1964 in Los Angeles, California. He graduated with honors from Johnston High School in Austin, Texas, in the spring of 1982. In the fall of 1982, he began attending the University of Texas at Austin as a National Merit Scholar, and was awarded a B.A. in drama in December of 1986. In the fall of 1987 he returned to the University of Texas, and was awarded an M.B.A. in December of 1989. After moving to Florida in the summer of 1990, he began the doctoral program at the University of Florida in the fall of 1990. Randy has taught courses in business policy and human resources at the University of Florida. Upon completion of his doctoral degree, Randy will be joining the faculty of the Department of Management at the University of Florida.

I certify that I have read this study and that in my opinion it conforms to acceptable standards of scholarly presentation and is fully adequate, in scope and quality, as a dissertation for the degree of Doctor of Philosophy.

Henry L. Tosi, Chair
McGriff Professor of Management

I certify that I have read this study and that in my opinion it conforms to acceptable standards of scholarly presentation and is fully adequate, in scope and quality, as a dissertation for the degree of Doctor of Philosophy.

John Hall
Lecturer of Management

I certify that I have read this study and that in my opinion it conforms to acceptable standards of scholarly presentation and is fully adequate, in scope and quality, as a dissertation for the degree of Doctor of Philosophy.

James Algina
Professor of Education

I certify that I have read this study and that in my opinion it conforms to acceptable standards of scholarly presentation and is fully adequate, in scope and quality, as a dissertation for the degree of Doctor of Philosophy.

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This dissertation was submitted to the Graduate Faculty of the Department of Management in the College of Business Administration and to the Graduate School and was accepted as partial fulfillment of the requirements for the degree of Doctor of Philosophy.

December 1995

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